The Executive's Guide to Mastering the Web in Business

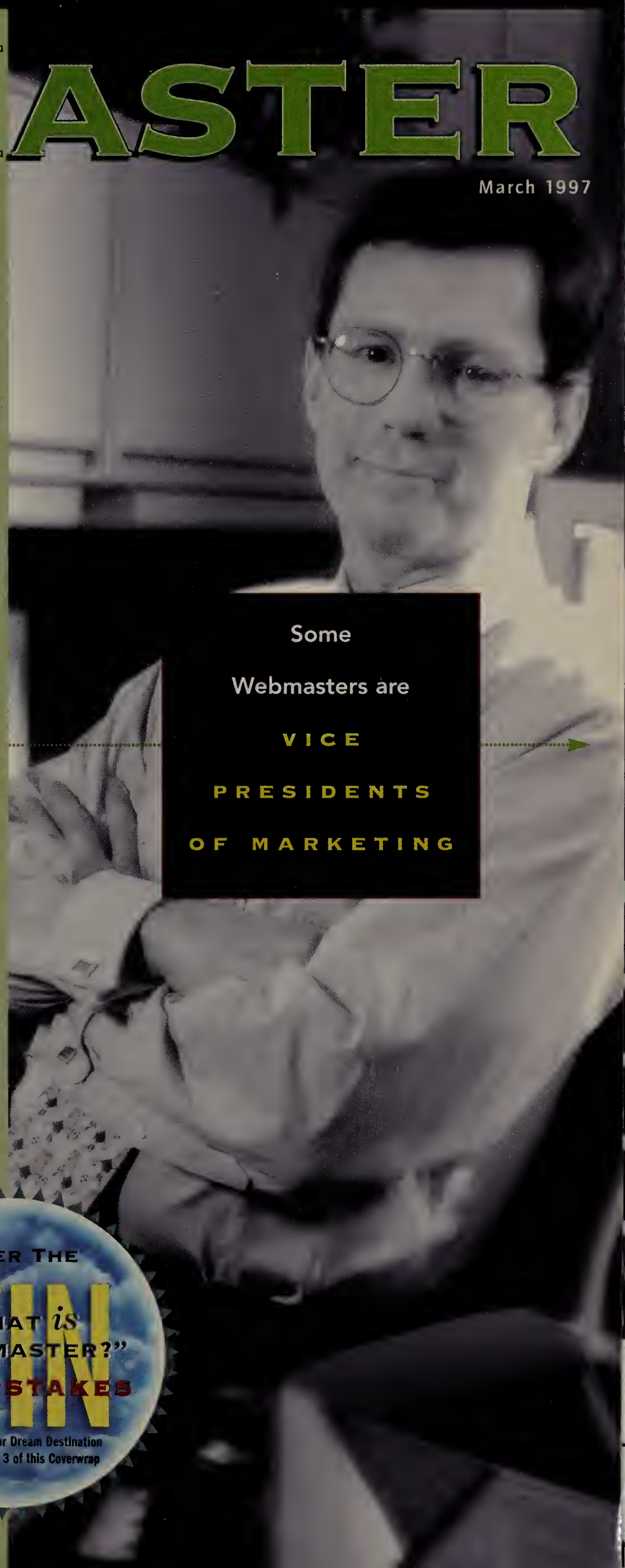
WEBMASTER

$4.95

March 1997

If you think a "webmaster" simply responds to e-mail all day...

THINK AGAIN!



Some Webmasters are VICE PRESIDENTS OF MARKETING

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WIN

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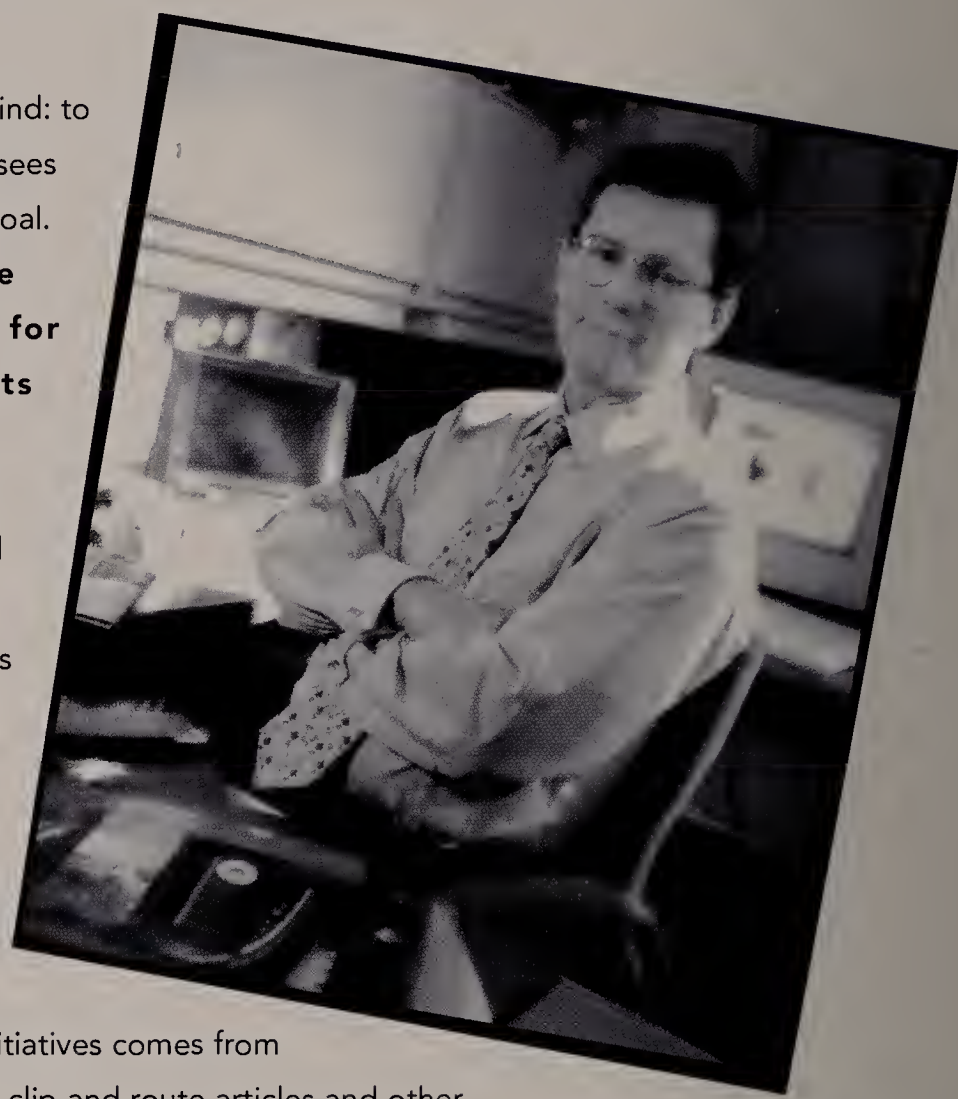
Details on Page 3 of this Coverwrap

"WebMaster is the only magazine that addresses building my business. I need to know how others are using the Web in creative ways — and apply those ideas to our business."

Kurt Dressel, Vice President of Marketing at Gannett Company, relies on WebMaster to Master the Web.



Kurt has one major objective in mind: to build Gannett's business. And he sees the Internet as a catalyst to that goal. **"My job is to peek over the horizon and find new ways for our customers and prospects to do business."**

Topping his list of **daily challenges** is helping traditional media, mostly newspapers, stay competitive. Two software systems developed by Gannett—Digital Collections, for archiving and retrieval, and Celebro Advertising Systems, a multimedia database—are well suited for the Internet environment.

"Funding for our Web initiatives comes from the very top of our organization. I clip and route articles and other items of interest from WebMaster to help **convince senior management of the Web's potential. The articles present** concepts in a way executives can understand, without getting lost in the technobabble."

"As our customers needs have changed from simple archiving to data warehousing across multiple databases, intranet solutions have become critical. WebMaster gives me the knowledge to enhance these applications."

WebMaster Magazine: Read by 150,000 IT and Business Executives Who Want to Master the Web

The webmaster function is represented by all areas of the enterprise. Although they might not hold the actual title "webmaster," these influential executives are involved in Web development, Internet and intranet product purchasing, and Web business strategy. Only one magazine addresses their needs: WebMaster.

To find out more about WebMaster Magazine and the audience it reaches, contact Mike Masters at (201) 244-5510 or masters@cio.com and ask for a WebMaster Media Kit.

"I like WebMaster's strategic business focus. The weeklies are merely press releases of technology products and the more technical journals are for my engineers."

The Executive's Guide to Mastering the Web in Business

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March 1997

What's New on the Customer Service Skyline?

HOW THE WEB HELPS CUSTOMERS HELP THEMSELVES AND LETS BUSINESSES BUILD NEW MARKETS

Atlanta Internet Bank CEO Don Shapleigh

ALSO INSIDE

Web-Enabled Manufacturing *Page 44*

The World Bank's Global Intranet *Page 50*

AN INTERNATIONAL DATA GROUP PUBLICATION

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THE GREAT INVISIBLE GUIDING HAND OF CAPITALISM HAS JUST SMACKED THE INTERNET UPSIDE THE HEAD ► NOW WHAT?

NO MORE HYPE. No more jargon. No more paradigm shifts, okay? Everybody agrees the Web has the potential to be a monumental economic force. But from a capitalist point of view, the Internet has had about as much impact as the two-dollar bill. Why? For one thing, security is lousy. For another, building interactive websites that are linked to corporate databases (which is to say, useful information) takes forever. For still another, keeping those websites updated with timely information costs a fortune.

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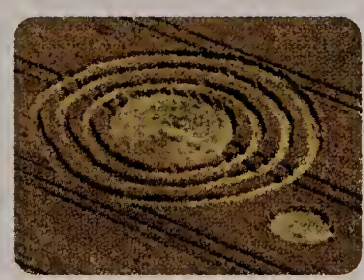

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WEBMASTER®

March 1997
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Help Yourself

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▼ A close look at the first wave of Web self-service applications confirms what banks have known for years: Customers really like to take care of themselves. Learn how Ernst & Young, Brøderbund Software and the Atlanta Internet Bank are using the Internet to give more for less.
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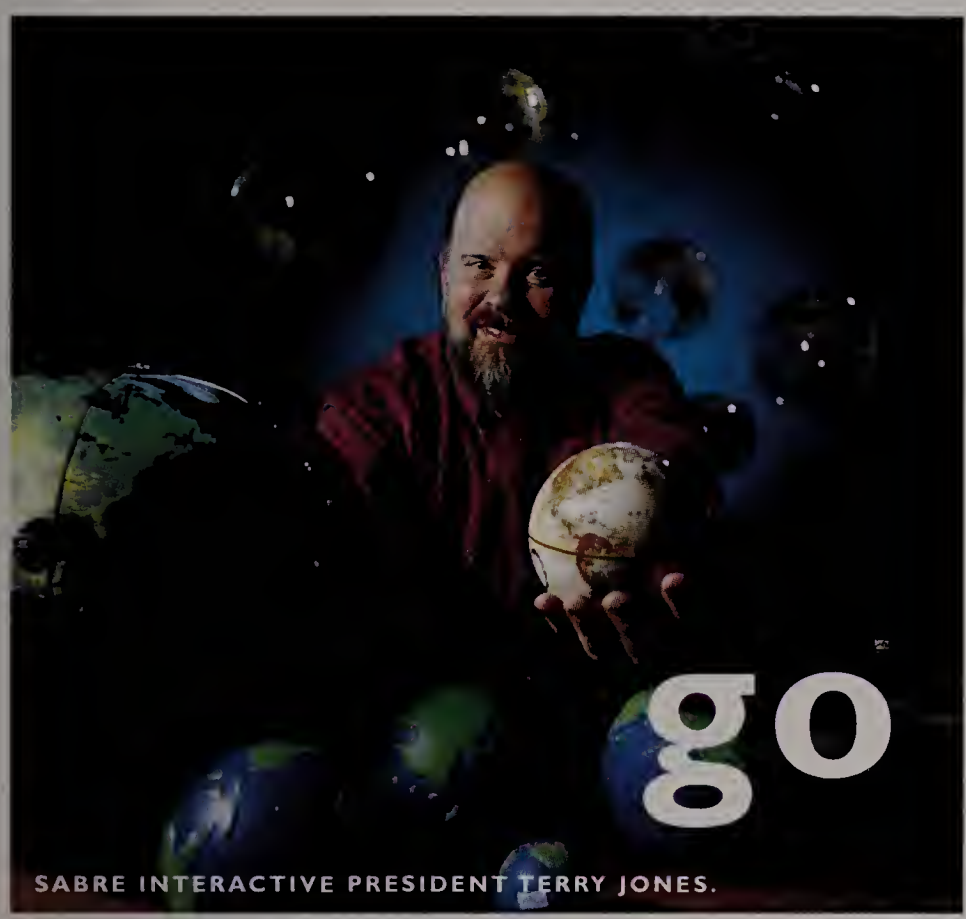
It's a Wired Wired World

▼ For 50 years, the World Bank has helped developing nations by building essential infrastructures such as transportation and agricultural systems. Now a new World Bank project gives them something even more valuable: information. **PLUS:** The World Series. Our map of the world shows which countries are ready to do business on the Net.
By Christopher Koch

Now Playing

Will a new kind of broker—the infomediary— pay consumers for the right to sell complete histories of their financial transactions? See "Every Man Has His Price" in Threads.

Cover image by Mark Tucker



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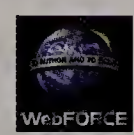

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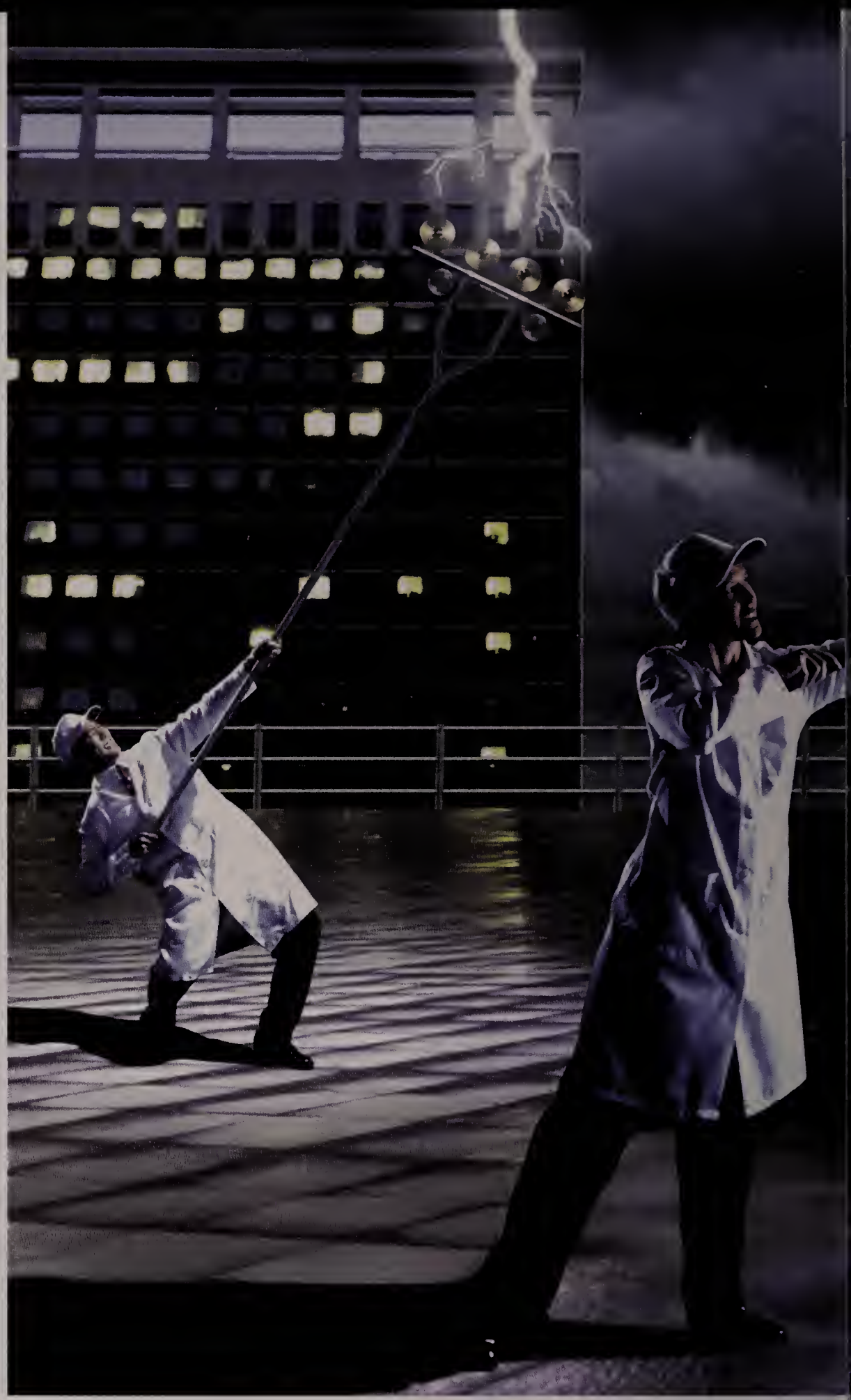

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The Plots Thicken

LIKE FLUORIDATION, now comes the network computer—the mighty sword with which to slay the dragon not of tooth decay but of IT infrastructural rot. And, as with fluoridation, now, too, come the shrill denouncements of conspiracy. In the 1950s (when mainframes weren't even the baby teeth of corporate back offices), fluoride scared the pants off of municipalities like Cleveland, where I grew up. Cleveland's civic leaders embraced the rabid Cold War dogma of the day that fluoride was a plot by the Reds (not the downstate Cincinnati ones) to contaminate our precious bodily fluids. This left me with choppers whose chief architectural attribute these days is way more mortar and amalgam than enamel, dentin and pulp. Like old Cobol, they still work, but talk about your legacy maintenance challenges...

Anyhow, grumbling about the NC plot centers on a few key themes, the main one being that a totalitarian corporate cabal (headed up by those wily Machiavellians in the IS function) is trying to revoke the creative, innovative, autonomous spirit that arrived in organizations only recently—oh, around the same time as the dawning of desktop-centric computing. And now a bunch of Lord Vaders are massing in Redwood Shores and Mountain View and Armonk and Redmond and Santa Clara (have you ever noticed that Santa is an anagram of Satan?) and scheming up ways to make a new bundle of swag off of logic-looted boxes that outsource absolute control of computing resources to that rejuvenated Death Star, the IS group. Egads! (Readers interested in a focused—if somewhat credulous—exploration of the issues relevant to network computing should check out NC World [*www.ncworldmag.com*], a newly launched online publication of *WebMaster*'s parent company, International Data Group.)

With Oracle Corp. having trademarked the terms "network computer" and "NC," it's easy to see how people might construe a monstrous profit motive. But let's get real about commerce here: No big idea in the world of technology has ever failed to make somebody—usually a lot of somebodies—rich. And Larry and Scott (and countless others lining up to feed at this trough) are mostly already rich. So don't be distracted from weighing the possible merits of the network computing model. Besides, as history has generally shown, it ultimately matters less how technology vendors expect a market will develop than how users subvert those expectations.

As always, the market will contort to meet actual, not imaginary or even predicted, customer needs.

So is it a big idea or not?

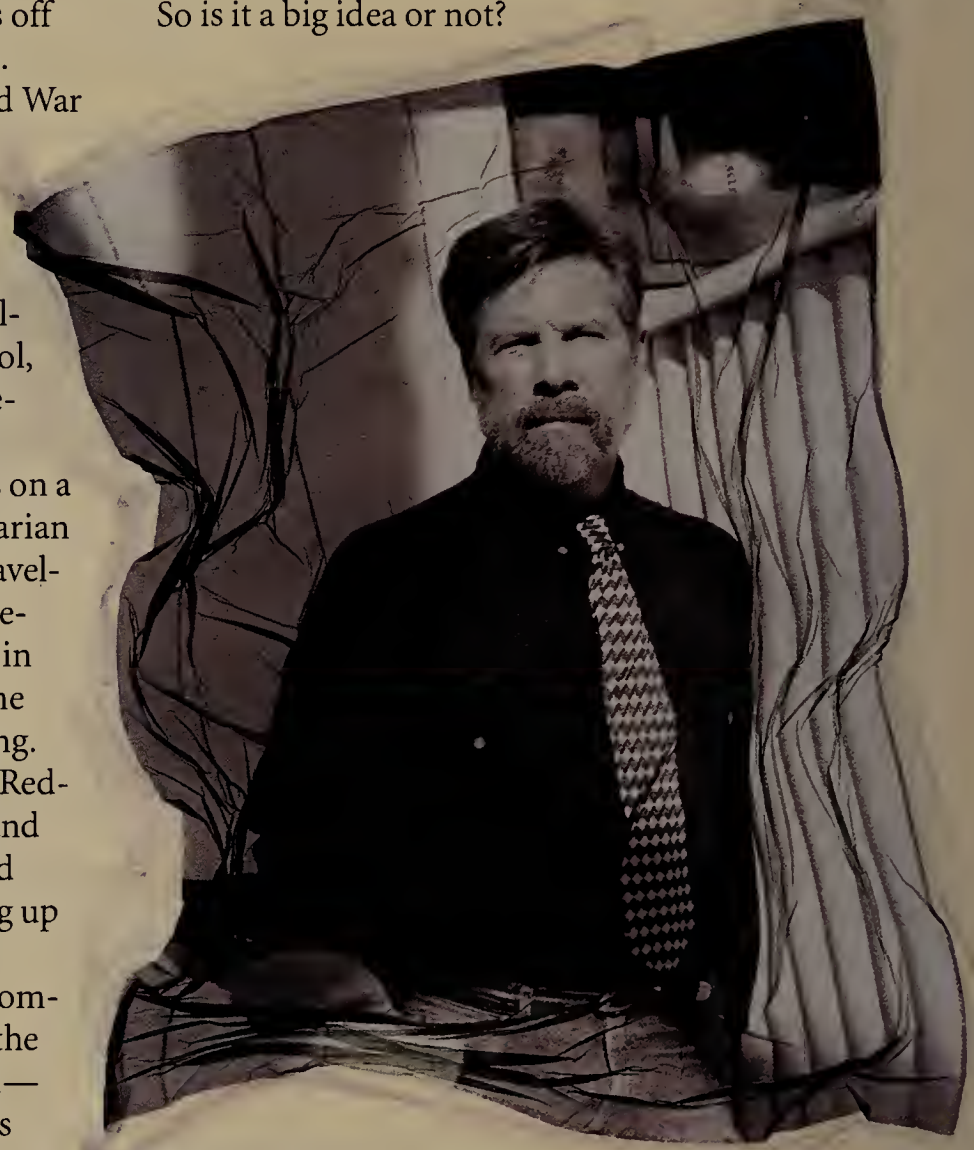

PHOTO BY JERRY MARGOLYCZ

Before you answer, it will be helpful to consider the vivid enterprise dream that animates much of the hype surrounding the NC. Imagine a world in which overhead cost and complexity melt away like icicles on a sunny spring afternoon in Aspen. Think of the clot of nonproductive energy and resources consumed in managing the typical computing infrastructure, as opposed to doing anything useful with them. That management overhead threatens to sink the IS groups at a lot of companies. And, believe it or not, many of the folks there would rather be working on a Web-based customer self-

service app than trying to figure out why the shipping department's e-mail clients crash every 15 minutes or so. It may be nice to have a reliable excuse for, say, failing to reengineer the procurement process ("Sorry, but I had to get that Office '97 upgrade deployed!"), but most CIOs (and growing numbers of savvy CEOs and CFOs) salivate longingly over the idea that something—anything—could lighten the manifold burdens of managing desktops.

It's too soon to know whether the Network Computer—or, much more important, the rearchitected enterprise it implies—will be fluoride or fiasco. Which means it's also too soon for anyone to run screaming in the other direction. But it is a big idea, and the potential opportunity is way too attractive not to at least explore it.

As one of the main aspirants in the fledgling market, Sun Microsystems Inc. is planning to walk the walk. Sun's CIO, Bill Raduchel, said in a speech last fall that Sun will migrate thousands of users "from the desktop to the Webtop"—a Java-powered vision of computing efficiencies that leaves the browser as the sole local application through which all other bounty flows (including, from the user perspective, a much simplified mechanism for security and access rights). Raduchel's speech created a fairly persistent buzz in the large audience, and he gave this coming June as the target date for implementing the shift. It will be interesting to see how Sun's experiment goes.

In the meantime, let us know if you're lacing up your Webtops at *mccreary@cio.com.*

Lew McCreary
Editor in Chief & Publisher

WEBMASTER

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PROFILE

Dutch Treat

A LITTLE OVER a year ago, managers at Heineken USA Inc., the sole U.S. importer of Heineken beer, asked themselves this question: If we were a new company setting up a new distribution system that would ship from Europe to wholesalers across the United States, how would we do it?

HOPPY DAYS: Heineken's Dan Tearno says it was "thinking outside the box" that spawned the company's HOPS.

Although the existing system—which required distributors to fill out paper invoices—wasn't broken, the managers thought that faster communication between distributors in the United States and abroad could improve things in a couple of ways. First, it could prevent wholesalers from overstocking the famous Dutch beer, thus cutting losses due to waste and discounting as the product approaches the end of its shelf life. And second, it could let the company fill orders more quickly and consequently exploit the sudden thirst for beer that coincides with hot weather and large-scale celebrations.

"We like to think outside the box," says Dan Tearno, Heineken USA's vice president of corporate affairs. "The Internet seemed like the way to go."

Working with American Software Inc. (*www.amsoftware.com*), Heineken put in place a Web-based, real-time collaborative planning system that offers companywide, instantaneous access to inventory and sales data. The program, the Heineken Operational Planning System (HOPS), lets distributors add sales figures and place orders. It then generates time-phased orders for each distributor based on current inventory, sales forecasts and target inventory positions. Tearno says HOPS cuts district sales managers, who previously devoted 20 percent of their time to order processing, out of the chain. It also makes the process paperless and reduces product delivery time from 11 weeks to four. Distributors, he says, were "blown away" by the program. Heineken's bean counters weren't displeased either: HOPS, says Tearno, will pay for itself in less than a year.

And as fate would have it, the timing of the program's beta test last fall couldn't have been better. It coincided with a near-unprecedented demand for beer in the New York metropolitan market—Heineken's largest. Unfortunately, says Tearno, the chance that such demand will reappear next fall is poor. The Yankees would have to win the World Series a second year in a row.

–Art Jahnke

En Garde

"The stakes are clear. If, in new media, our language, our programs [and] our creations are not strongly present, the young generation of our country will be economically and culturally marginalized."

–JACQUES CHIRAC, president of France, where Georgia Tech Lorraine, the European extension of the Georgia Institute of Technology, has been sued because its Web site is presented in English and not in French

PHOTO BY EDWARD SANTALONE

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CurrentIssue uses databases to manage pages, images, objects and scripts, and tracks where everything goes. Dynamic HTML documents and conditional processing are a snap. Includes interactive components like response forms and threaded discussions - all without custom programming. Macros make it easy to include common elements. Server/backend processing empowers non techies to make harmless updates through a Web interface. Banner ad and site management tools are also standard. Got a taste of what power is really like? Get to the CurrentIssue site and learn more.

hoover dam

old

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CURRENT ISSUE

POWER is a Beautiful Thing

>> p + s + v = ci

photo of Hoover Dam provided by the U.S. Department of the Interior, Bureau of Reclamation; photographer, Andrew Pern...

Browser Beware

T. Barnum said "There's a sucker born every minute." On the Internet, that birth rate could probably be measured in nanoseconds.

As the Internet's population mushrooms, so do the number and types of online rip-offs, frauds and unethical or illegal moneymaking schemes. "Just about every scam that is off the Net is finding its way online—and then some," says Audri Lanford, publisher of the Internet Scambusters Web site and e-zine (*www.scambusters. com*).

The most common rip-offs are illegal pyramid schemes, in which organizers take money from participants who then recruit others to invest and take money from them. Typically, those below the top layers lose everything. In a one-day online search last December, investigators from the Federal Trade Commission and other agencies found 500 Web sites apparently running pyramid schemes. Agency officials prosecuted the operators of at least a dozen and warned others to clean up their acts or shut down.

Some sites charge big bucks to create online businesses that they promise will reap impossibly high returns. Additional scams include phony offers to register domain names (for 10 times the normal cost), clean up personal credit and search for scholarships, not to mention solicitations from dubious charities and fraudulent offers of merchandise at dirt-cheap prices.

Here are some tips to prevent getting taken online:

✔ Get business references—and check them.

✔ Use Deja News (*www.dejanews.com)* to search Usenet newsgroups for negative comments about the offering.

✔ Beware of companies interested in one-time business rather than an ongoing relationship.

✔ Avoid schemes in which participants profit only by recruiting others to invest.

✔ Check with state attorneys general, the FTC (*www.ftc.gov*) or the Better Business Bureau (*www.bbb.org*) for information on electronic scams in general and complaints about specific individuals or businesses. *–Anne Stuart*

Make Us An Offer

One way to dispel rumors that money for state contracts never gets beyond the old-boy network is to put those contracts out to bid. Way out to bid.

To date, 26 states have put at least some of their purchasing opportunities out as far as possible by posting procurement notices on the World Wide Web. At the Massachusetts site, called Comm-PASS (Commonwealth Procurement Access and Solicitation System), goods and services needed by more than 75 state agencies can be reviewed by hopeful vendors, who can then download forms to submit a bid. So far, vendors must submit those forms by snail mail, although the state is working to put the entire bidding process online.

The result, says Donald Bansfield, a consultant hired to get the site up and working, has been a broader and more competitive response. "You're opening up the vendor community," he says. "You're saying, 'Let's not make it so territorial and tribal.'"

In fact, says Bansfield, when other state agencies learned that solicitations posted on Comm-PASS were getting responses from hundreds of vendors all across the country, even those not required to put contracts out to bid asked if they could use the site. But those requests weren't as surprising to the Comm-PASS team as was some of the content it was asked to post. The Massachusetts Lottery Commission, for example, asked Comm-PASS to announce its intent to spend $1.3 million on musical greeting cards.

ILLUSTRATION (ABOVE) BY JOHN R. NELSON / (BELOW) BY OCTAVIO DIAZ

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Every Man Has His Price

WEB MERCHANTS are frequently depicted as vultures waiting to swoop down and wrest vital personal data from helpless visitors. But if things develop the way an academic and a consultant predict, that relationship may become consensual and—for consumers—lucrative.

In "The Coming Battle for Customer Information," published in the *Harvard Business Review*'s January-February issue, John Hagel III and Jeffrey F. Rayport point out that technologies such as smart cards, Web browsers and personal financial management software are giving consumers a more complete accounting of their own spending habits. The next logical development is the emergence of a new kind of middleman, who will "buy" that information from consumers and sell it to vendors. Those middlemen, dubbed "infomediaries" by Hagel and Rayport, will sell only information for which they have purchased the rights and will negotiate some form of compensation—discounts, preferred customer status or cold cash—for privacy-forfeiting consumers.

And who will likely evolve into these infomediaries? The authors suggest Intuit Inc., whose Quicken personal finance and check-writing software is already in 11 million households.

The idea isn't exactly a revelation to Intuit, which, according to Mari Baker, vice president and general manager of the company's Personal Finance Group, is looking carefully at the potential value of becoming an infomediary. "Infomediation can offer wonderful benefits to customers," says Baker. "People can leverage technology to help them make smarter decisions."

And so, of course, can information brokers.

Modeling Language

Most people don't associate Web site design with the never-too-thin world of fashion design. But that's exactly the link Microsoft Corp. hopes to forge with a competition that challenges designers of apparel, accessories and home furnishings to create cyberspace showrooms.

Microsoft Fashion Design Online (*www.microsoft.com/industry/retail_dist/contest.htm*) encourages designers to develop Web site concepts promoting their lines. The software giant will provide technical expertise to help launch the winning site.

Contest organizers point out that the fashion industry and the Web have several things in common: Both are innovative, are dominated by visual images and change faster than you can say, "Calvin Klein."

Entries will be evaluated for innovation, customer "viewing experience" and, of course, use of the Microsoft Internet Explorer browser. But judges will also scrutinize entries for "a concrete business plan," says judge Jordan Harris, president and CEO of Hurricane Interactive Technology Solutions Inc. (*www.hurricane-inc.com*). Winners will be announced this month.

The fashion industry, which was among the first to embrace EDI, mass customization and other trends, was a season or two slow in moving online. Now designers are learning that they can put up Web sites for about the cost of a four-color ad in some major consumer magazines. "The next thing you know," says Harris, "you have worldwide distribution potential." ***–Anne Stuart***

A Big Hand for the Little Company

SMALL-COMPANY executives don't have large amounts of time to browse on the Internet. To help them, the First American Group Purchasing Association, a resource for small business, has identified 10 sites its clients will find valuable.

✔ NETMARQUEE FAMILY BUSINESS NETCENTER(*www.nmq. com*): information for family-owned companies

✔ SMART BUSINESS SUPERSITE (*www.smartbiz.com*): for entrepreneurs

✔ SCOR-NET (*www.scor-net.com*): for small businesses raising capital

✔ LET'S TALK BUSINESS NETWORK (*www.ltbn.com*): RealAudio program about entrepreneurship

✔ SBA'S WOMEN'S BUSINESS OWNERSHIP HOME PAGE (*www.sbaonline.sba.gov/womeninbusiness*): for women in small business

✔ EXPORT USA (*www.exportusa.com*): John R. Jagoe's guide for exporters

✔ COMMITTEE ON SMALL BUSINESS (*www.senate.gov/~sbc*): a U.S. Senate resource

✔ CNNFN FINANCIAL NETWORK (*www.cnnfn.com*): financial news

✔ FRANCHISE HANDBOOK ONLINE (*franchise1.com*): franchising news

✔ SECRETSOURCE (*www.secretsource.com*): information for the legal, medical and other professions

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Safe, Not Sorry

PETER SCHWEIZER is a visiting scholar at the Hoover Institution and author of *Friendly Spies* (Atlantic Monthly Press, 1993). His most recent book, co-written with former U.S. Secretary of Defense Caspar Weinberger, is *The Next War*, just released by Regnery Publishing Inc. We asked Schweizer about the kinds of uninvited visitors corporate webmasters should worry about and why.

WebMaster: Many companies are building password-accessible intranets that allow salespeople and customers to place orders and track inventories online. Should they think twice about doing this?

Peter Schweizer: One of the great myths of information security is that theft largely involves high-tech R&D information. The cold, hard fact is that the number-one theft item is sales information and data. If you have customers and you track information about them, you are a potential target for competitors. Firewalls provide some protection, but one of the great lessons of the computer age is that no technological "solutions" are totally foolproof.

WM: How do you keep thieves out?

PS: Companies need a two-pronged strategy. First, they need to acquire the technologies to offer some defense. Second, they need to [address] the human dimension to any security challenge. Most cases of purloined information involve an insider—a disgruntled employee who decides to "cash in" by stealing information. Another important approach: Encourage employees to let you know when they find a security leak. The old philosophy of security through obscurity—hoping to keep security flaws unknown by keeping them quiet—no longer works. Offer bonuses to employees who identify security problems.

WM: If you find a break-in, can you take legal action?

PS: There is legal recourse, especially in light of the new economic espionage laws put in place last year. But the difficulty is in detecting the theft. Over 80 percent of thefts are detected long after the perpetrator has left.

WM: Who, besides disgruntled insiders, presents the biggest security threat for companies?

PS: There are multiple threats—random hackers looking for the challenge of breaking into "secure" networks; corporate competitors, particularly those overseas; and foreign intelligence services. Remember, most of the world does not operate under laws that make bribery and information theft illegal. They operate under different legal and ethical business standards. Theft in many countries is simply "good business intelligence."

—*Art Jahnke* WM

Six Degrees of Certification

Do [illegible] professional certifications?

Yes, say corporate executives, who more or less as much as they can about the skills of [illegible] hires.

Not really, say [illegible] who argue that it is [illegible] possible to test constantly changing [illegible] not to mention further requirements, such as [illegible] understanding of design theory and the ability to [illegible] functionally (see "Hire Authority," [illegible]).

While the debate rages, webmaster certification programs are popping up from coast to coast.

A SAMPLE OF WEBMASTER CERTIFICATION PROGRAMS

DePaul University School of Computer Science
[illegible]

Montclair College
[illegible]

Los Angeles City College Department of Business Administration
[illegible]

Marquette University Division of Continuing Education
[illegible]

[illegible]

New Jersey Institute of Technology Continuing Professional Education Program
[illegible]

Raritan Valley Community College Complete Information Sciences Program
[illegible]

University of California at Santa Barbara Extension Program
[illegible]

CORRECTION: The Threads section of the January issue of *WebMaster* incorrectly identified URLs for Ernst & Young LLP. The correct address for Ernst & Young's corporate Web site is *www.ey.com*; the correct address for the informational teaser for its members-only site, Ernie, is *ernie.ey.com*.

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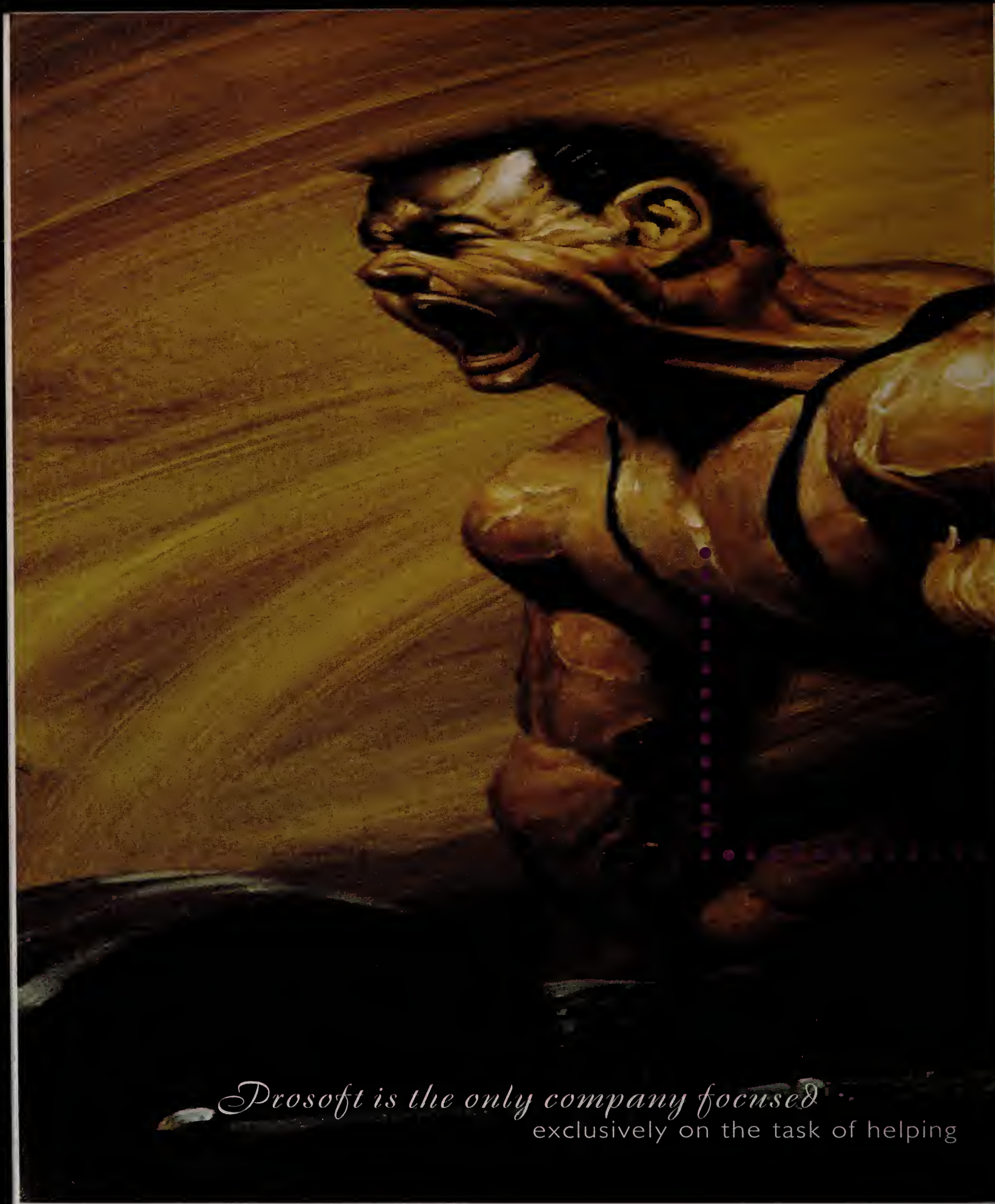

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TIM CARTER THINKS HIS WEB SITE WILL BECOME *THE* PLACE FOR HOME REPAIR ADVICE—AND ADVERTISERS AGREE **BY ANNE STUART**

TIM CARTER'S GOALS are pretty simple. He wants his "Ask The Builder" site to be the Web's most authoritative homeowner resource. And he wants it to make $1 million within two years.

Carter—a veteran contractor who also wants to be America's most successful self-syndicated newspaper columnist and hopes to launch a national TV show for homeowners—is well on the way to achieving his business goals. Launched in December 1995, "Ask The Builder" (*www.askbuild.com*) earned double its startup costs before going online, thanks to revenue from its first banner advertiser, Pella Windows & Doors from Pella Corp. In the year that followed, Carter's advertising roster grew to include such major players as United States Gypsum Co., Heartland Building Products Inc. and Porter-Cable Corp.

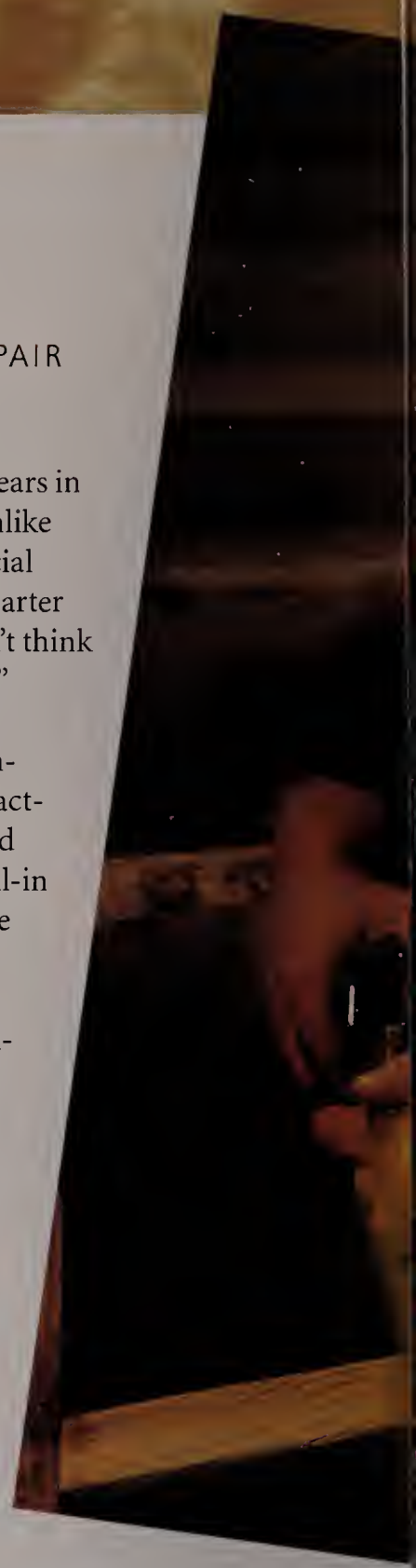
Citing competitive concerns, Carter won't provide specific dollar figures for his earnings or his investment. But he says that in the first year alone he made seven times from advertising what he spent putting the site online. That's not bad for a guy with no previous experience selling ads, especially one who first saw the Web just one month before launching a business on it.

But let's begin at the beginning. Carter, who lives in his hometown of Cincinnati, put himself through college by working part-time for a local contractor who fixed up and sold old houses. After graduating in 1974 with a degree in geology, he started a handyman business with his wife, Kathy. They rehabilitated old houses and gradually moved into construction and remodeling work. Over the next two decades, Carter picked up a variety of other skills, becoming a licensed real estate broker, a licensed master plumber and a specialist in concrete work.

In 1993, *Remodeling Magazine* gave Carter the industry's equivalent of an Academy Award, naming him one of the top 50 remodelers in America. "I thought, 'This is going to open some doors,'" he recalls.

At the time, Carter—who disdains comparisons to the stars of *This Old House* and *Home Improvement*—was considering writing a how-to guide for homeowners but took his wife's suggestion to try a newspaper column instead. *The Cincinnati Enquirer* and the *Chicago Tribune* were his first two customers; Carter's "Ask The Builder" feature now appears in more than 40 daily newspapers. Unlike most columnists, who let commercial syndicates handle their business, Carter syndicates his work himself. "I don't think I could ever work for anybody else," he says.

In mid-1995, Carter became convinced that he could spin his contracting background and newspaper and radio exposure (he has hosted a call-in program since 1994) into a separate virtual business. At that time, his online experience was limited to running a homeowners' dial-in bulletin board service for a Cincinnati community network. But, like other netrepreneurs, he quickly realized the Web offered far more potential.



AS CARTER SAW IT, "Ask The Builder" had two advantages going in: free national advertising (the URL appears in his newspaper column) and a backlog of previously published content. Carter sells to newspapers first publication rights—meaning that once his articles are published, control over their content reverts to the author. Typically, he puts columns online a couple of months after they have appeared in print. Because most are on such timeless topics as eradicating carpenter ants, they don't appear dated to online readers.

Currently, the "Ask The Builder" site contains 160 columns—the equivalent of two or three do-it-yourself books—on topics ranging from picking the right house paint to preventing basement water seepage. For each 600-word column, Carter writes a companion "builder's bulletin," with technical details on completing the job. Bulletins cost $2 by mail for newspaper readers who write to request them and are free on the site. Carter writes all his own HTML code on a Gateway 2000 Inc. computer in his home office and uses

PHOTO BY JOE HARRISON / BORDER IMAGE BY FPG INTERNATIONAL

THE FIXER: "Ask the Builder" [illegible] Tom Carter went to work with two important assets: free advertising [illegible] backlog of [illegible]

Qualcomm Inc.'s Eudora Pro 3.0 for e-mail and Microsoft Corp.'s Publisher for his builder bulletins. Internet service provider Cix Inc. hosts the site on an Intel Pentium PC running BSD Unix.

But "Ask The Builder" does more than recycle content. Every day, Carter updates an online file of homeowner tips—some his own, some from site visitors. The site also includes a question-and-answer message board, a searchable database listing hundreds of home industry manufacturers and information on ordering various products, such as a diskette of the content that retails for $35 (a searchable CD-ROM version is in the works) and an unusual, "environmentally friendly" oxygen bleach product for clothes that sells for $5 a pound.

Still, it's the ads that are producing that enviable ROI. Carter's business model can be described as "exclusive category sponsorship," meaning he sells space to only one advertiser in each category: one redwood siding manufacturer, one slate flooring company. Exclusivity helps to sway advertisers who harbor doubts about the medium. "I say, 'You may be right,'" Carter says. "But I also tell them, 'What happens if you're wrong? What happens if the Web becomes as important in our lives as TV was in our parents' lives? If I'm right and you're wrong, and if your competitor gets on my page and becomes exclusive, you will never be able to get on my site.'" He also cites a 15 percent click-through rate that has kept his founding advertisers happy.

Unlike some other home repair sites, "Ask The Builder" doesn't place ads on the home page or scatter them randomly throughout its pages. Rather, ads appear when readers click on content relating to their subject. Thus, the Pella Windows & Doors ad—and only the Pella Windows & Doors ad—appears atop columns or builder bulletins about wooden replacement windows. "Of course, the ad banner is a direct hyperlink to Pella's site, and any other place where their name is mentioned becomes a hyperlink too," Carter says. Visitors who download columns get the associated banners as well. "If [users] have a color printer, these advertisers get their color ads printed out right on top of the column."

Carter says his columns never push specific products or manufacturers. Instead, he cites generic attributes that consumers should look for when purchasing home building or maintenance products. (The builders' bulletins do recommend some products by name but, like the columns, the bulletins have been written and published before any advertising is sold.)

Does the arrangement tread too close to the traditional publishing world's church-and-state dividing line between editorial and advertising? Carter says it doesn't. He points out that his site is set up like any newspaper special section on, say, a home-and-garden theme. "Do you think it's by accident that all the patio furniture and sofa ads are in that section? How come they're not on the sports page?" he asks. "My locking a manufacturer to a specific column is no different than

what newspapers have been doing for years."

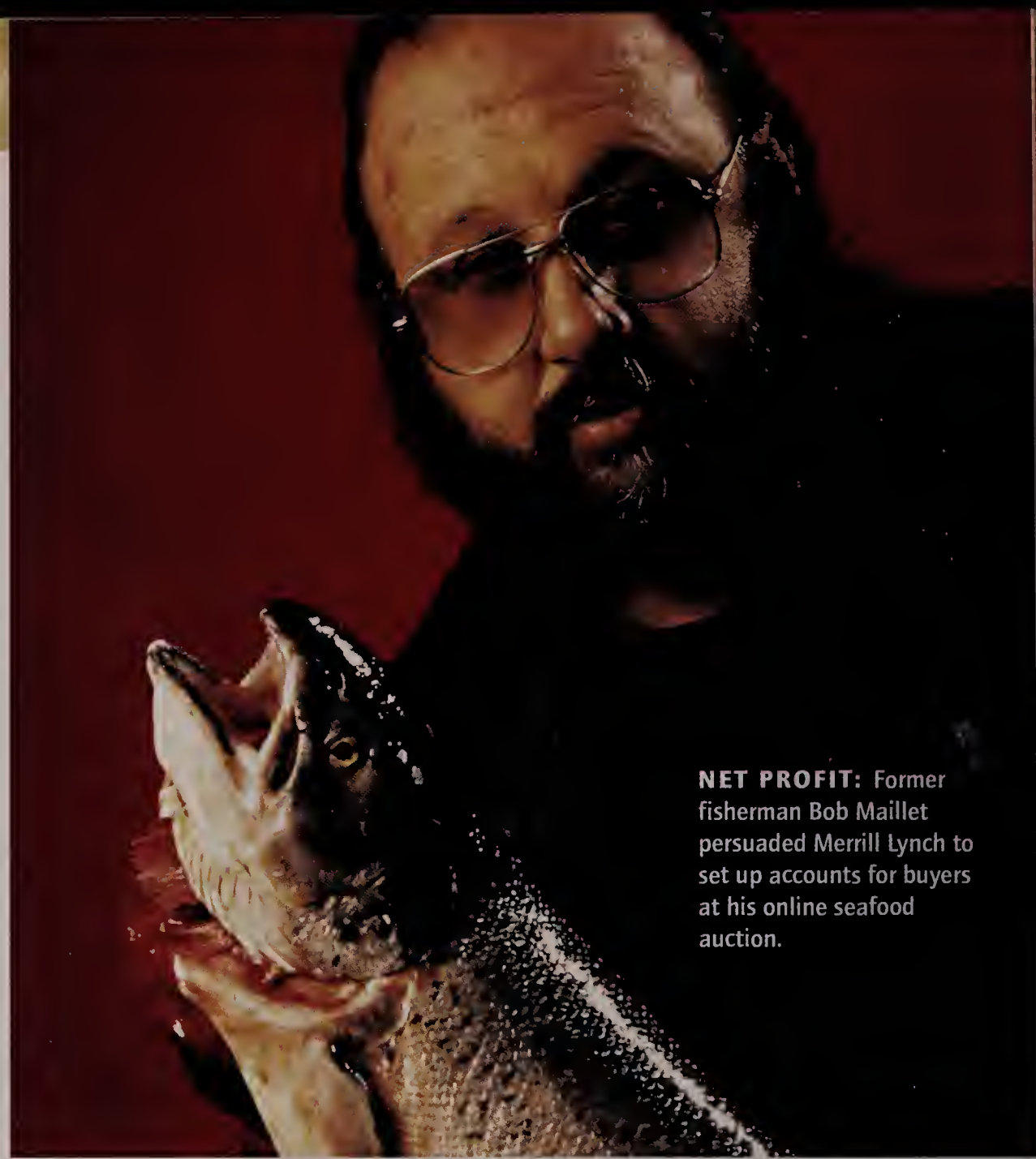
When it comes to setting advertising rates, Carter admits he's winging it. "I'm still trying to find what the magic number is. I don't know that anyone knows it," he says. His current strategy involves ordering media kits from trade magazines to find out what they charge for full-page color ads, then undercutting those rates. It costs less to advertise on "Ask The Builder" for a year than in a print publication for a month.

Traffic on the site has built steadily. By his first anniversary in December, Carter had logged about 100,000 unique visitors, who viewed an average of six or seven screens per visit. He has no hard figures on repeat traffic but estimates that about 20 percent of visitors have been to the site before. And the site gets upward of 50 e-mail messages daily, with requests for advice on such projects as building a shed and repairing a concrete foundation. Carter spends about two hours a day responding personally to questions.

That level of personal involvement, combined with his other media work, has prompted Carter to cut back on the construction jobs where he earned his reputation. With a partner, he now cherry-picks small jobs that are especially lucrative or challenging.

It's not clear whether "Ask The Builder" will make Carter a millionaire, spin off into a TV show or even fuel the growth of his newspaper column. But even if it does none of those things, "I've never had so much fun in my life," says Carter, hitting the nail on the head.

Senior Editor Anne Stuart can be reached at astuart@cio.com.



NET PROFIT: Former fisherman Bob Maillet persuaded Merrill Lynch to set up accounts for buyers at his online seafood auction.

PHOTO BY CLARKE MISHLER

A Fish Story

A WEB SITE THAT HOPES TO OFFER A WORLDWIDE SEAFOOD AUCTION GIVES NEW MEANING TO THE IMPORTANCE OF KEEPING CONTENT FRESH

BY ART JAHNKE

THREE YEARS AGO, Anchorage, Alaska-based fisherman Bob Maillet was scrambling for new ways to keep his company in the black. Seafood prices were depressed, Japanese boats were taking more of the action, and the Alaskan fishing business was beginning to look as unpromising as Maillet's old trolling grounds off New Bedford, Mass. Maillet, now the president and CEO of Innovative Internet Marketing Systems (IIMS) Inc., pinned his hopes on the international niche market for sea snails, known as scungilli. The problem was that scungilli's popularity was greatest in Italy, France and Japan, and Maillet knew little about those countries' seafood markets.

A friend suggested that Maillet try closing the gaps in his knowledge by logging onto the World Wide Web, and he did. But after seeing the breadth of information available there, Maillet started thinking about something bigger than mere snail sales. What he saw was the potential market for a market—specifically a seafood market on the Web.

The fact that Maillet, a ponytailed, Harley-riding fisherman, knew nothing about HTML or CGI didn't trouble him. In the past few years, the ability to learn new skills had become a requirement of his trade. "Being a fisherman today, you have be a politician and a lawyer," says Maillet. "It's not like you throw out your nets in the water and catch fish. You've got to know how to do a little of everything, and what I saw on the Internet was a new medium for cutting the costs of getting seafood to market."

Maillet's idea was, of course, the same one that has occurred to Web entrepreneurs in dozens of other industries: replace the broker. "The only thing the broker has is information," says Maillet. "That's what the Internet is all about."

So Maillet teamed up with two of his fishing partners to found IIMS and then sat down to teach himself HTML. In February 1995, IIMS launched FishMart (*www.fishmart.com*), a Web site that originally consisted of little more than product listings from a few local seafood retailers. Today, FishMart's home page offers an impressive collection of links, some to pages produced by Maillet, others to sites that support various seafood-related business activities. (One, for example, helps sellers identify buyers with troubling credit histories; another lists agencies that loan money to commercial fishermen.) And because Maillet wants FishMart to serve all the players in the seafood industry, he has assembled links to authoritative agencies such as the Food and Drug Administration (home of information on acceptable levels of toxins in shellfish), to local and global weather reports and to data from the National Marine Fisheries Service on the tonnage, type and price of fish in New York, Boston and other large markets.

The fact that Maillet, a ponytailed, Harley-riding fisherman, knew nothing about HTML or CGI didn't trouble him.

ALL THAT INFORMATION is free; Maillet's revenue hopes reside in three other portions of the site. One modest moneymaker is a section called Maritime Pages, which features classified ads for fishing-related products and opportunities (for example, radio equipment for sale and Help Wanted ads for first mates). Then there's Public Market, which rents space to seafood retailers so they can post their offerings online. By the beginning of 1997, almost two years after launch, Public Market had only six clients, all of whom sell primarily high-end salmon products and take orders via 800 numbers rather than over the Internet. And while Maillet reports that one of his retailers received a $100,000 order from the site, IIMS collects only $13.50 a month for every three screens posted.

But FishMart's classified ad and retail sections are mere minnows when it comes to revenue generation. The site's potential Moby Dick is an on-site auction where fishermen and warehouses will offer their products to wholesalers and retailers. That service is still under construction, but Maillet says he hopes that by this spring FishMart will be selling large quantities of fish to buyers all over the country and—more important—profoundly changing the way the seafood industry operates.

For decades, seafood sales have worked pretty much the same way as have other commodity sales. Fishermen catch fish and sell them to processors, who sell them to wholesalers and brokers, who sell them to retailers, such as supermarkets and restaurants. In Maillet's vision, FishMart would become the broker, charging three percent of each sale for its services. Like many brokers online and off, Maillet would never touch the product.

Maillet says the auction will work like this: FishMart will invite anyone who sells seafood anywhere in the world—and who meets certain inspection standards—to put products up for bid. Interested buyers, all of whom must have trading accounts with FishMart, will use a password to enter the auction; once inside they can check out the quantities and prices of products and then place their bids via e-mail. (The auction process itself will be outsourced to the Alaskan Auction Co.) Once a bid is accepted, the product will be delivered by a freight forwarder selected by the buyer. Buyers needing help in that department can click

on a link for a list of companies that specialize in moving large quantities of seafood fast.

So far it sounds relatively simple. But FishMart faces the same hurdle as have many other experiments in electronic commerce: It must find a way to move a seriously large amount of money from, say, a buyer in Chicago to a seller in San Francisco. "Conventional banking can't do it," says Maillet. "For a buyer to put in a bid, he's got to have a line of credit."

To provide that credit, Maillet has struck a deal with Merrill Lynch, Pierce, Fenner & Smith Inc., which will set up password-accessible, interest-paying accounts for interested buyers. "We are going to pull this deal together for them," says Todd LaPorte, a financial consultant working in Merrill Lynch's Anchorage office. "It's very interesting. This is the first account of its kind that I know of, and it could be applied to any Internet business. If he gets just part of the Alaskan market, he could sell hundreds of millions of dollars worth of fish."

Maillet, of course, has more than the Alaskan market in mind. So far, he says, 100 seafood sellers have signed up, and he has even had some interest from Europe. And while Maillet says he expects to eventually sell fresh seafood (what better way to move a perishable product than over the Internet?), his first sellers are cold-storage houses eager to unload fish whose storage costs are approaching their market value. "Instead of them having 100 salespeople on the phone, they can let us move it," says Maillet. "If they don't sell it on our site, it doesn't cost them anything."

John Sackton, president of Seafood Datasearch (*www.seafood.com*) and a recognized authority on the industry, says there are a half dozen sites where seafood companies post product information but only one other that is transactional.

"FishMart is a good idea," says Sackton. "But at this point there are really only a few people who will participate in an auction that sells large amounts of fish at the wholesale level. I don't think the buyers are there yet."

Maillet agrees that most seafood buyers are not yet Web-savvy but says he'd rather be ahead of the curve than behind it. In any case, he is negotiating with AT&T Corp. to help promote his business to seafood wholesalers. Maillet hopes to eventually have a three-tiered marketing system that will accommodate large buyers such as supermarkets as well as small mom-and-pop operations.

"What we really need are the big chains," says Maillet. "I think we can get them eventually, but we've got to price the product lower and get the fisherman more."

FishMart's first sellers are cold-storage houses, which grow eager to move fish as storage costs approach market value.

When Maillet isn't negotiating the future of FishMart, he can be found tinkering with IIMS's other production, a motorcycle Web site called BikerMart (*www.bikermart.com*). Maillet created BikerMart for love rather than money, but that doesn't mean money isn't on his mind. To date, he and his partners have put about $400,000 into IIMS and earned back only a small fraction of their investment.

As for technology, FishMart and BikerMart are supported by two Sun Microsystems Inc. Sparc servers and a Netscape Communications Corp. Commerce server. IIMS has contracted with Open Systems Inc. for security, and graphics and programming are done in the company's Seattle and Anchorage offices. Maillet himself grinds out HTML on an old 486 PC. Sometimes he even likes doing it: After 20 years on the water, he is more than ready to try a new medium.

Still, there are a few situations that even someone as adventurous as a motorcycle-riding fisherman prefers to avoid. Ask Maillet how he intends to work with the allegedly mob-run Fulton Fish Market in New York, for example, and his answer is unequivocal:

"I ain't messin' with the Fulton Market." WM

Senior Editor Art Jahnke can be reached at ajahnke@cio.com.

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A FEW WORDS ABOUT WHAT TO LOOK FOR IN A WEBMASTER—AND WHY THE GUY WITH 10 YEARS OF JAVA EXPERIENCE ON HIS RÉSUMÉ IS PROBABLY THE WRONG CHOICE **BY MARY E.S. MORRIS**

Hire Authority

You want to hire a Web professional, not a Web professional wannabe. The big question is, how do you tell the difference? It's not always easy, but there are a few things you can do to distinguish the real thing from the dreamer.

Don't look for certification, although it is becoming more available (see "Six Degrees of Certification," Page 16). While many universities are rushing to market such a thing, via weekend Web training seminars and full-semester courses, practitioners argue that Web technologies are evolving so quickly that this year's certification standards are next year's historic documents.

Instead of looking for a sheepskin, consider demonstrated skills, keeping in mind that Web professionals must be multidisciplined. Building an effective Web site takes some business knowledge, some artistic sensibility and some interactivity skills. And if the site moves beyond the simple publishing paradigm to databases and behind-the-scenes applications, a certain amount of technical savvy is also necessary.

Despite the avalanche of new HTML conversion programs, plain old HTML skills are still important. Then there are graphical skills. If the site needs custom graphics, the work can be outsourced to Web people who specialize in it, but every Web professional needs some graphics manipulation skills, enough at least to tweak color maps and place images on low-byte diets. Those skills can be evaluated best by taking a close look at the use of graphics in a portfolio Web site, something that most experienced Web professionals should be happy to provide.

ILLUSTRATION BY JOHN UELAND

As with the hiring of anyone who will oversee a multifaceted endeavor, coordination skills, project management experience and demonstrated leadership are also important.

The more tasks a site performs, the more important are technical capabilities for the person presiding over it. But while people often ask what programming language skills to require of their Web professionals, that question is becoming less pertinent. As rapid application development environments and modular components grow in importance, they will increasingly separate the developer from the bulk of code creation. Nonetheless, while programming experience need not be a job requirement, some knowledge of C, C++, Java, JavaScript and Visual Basic is not bad to have.

In addition, large-scale Web endeavors benefit from real administration

knowledge. Find someone who knows the meaning of "automated operations" and "production environment." It can be difficult for a designer or developer to change gears and function well in a production mode.

Finally, there are design skills—the toughest skills for a potential employer to assess. HTML skills can be tested and graphical skills are plain to see, but Web site design sense is sometimes best judged by asking how well a site does what it sets out to do. And the best way to answer that question is to carefully study the candidate's portfolio.

A Web portfolio consists of a Web site and a business analysis of that site's goals and results. Ideally, the portfolio will also include an evaluation of audience characteristics such as comfort level with computers and the Internet, expected stimulation level, common client system configuration (i.e., common browsers, plug-ins and video capabilities) and relevant demographic information.

It doesn't take a rocket scientist, or even a garden-variety techno-weenie, to evaluate a Web site. First, look at the business goals provided by the candidate. They will most likely include informing, entertaining and communicating with a target audience; providing a positive, intuitive surfing experience; and motivating a particular course of action. For example, a publisher's Web site devoted to a new book will announce its existence, reveal something about its contents, entertain users sufficiently to create a positive association with the product and motivate them to purchase a copy.

As the evaluator, put yourself in the shoes of the target audience. Then, using the goals listed in the portfolio, evaluate your experience with the site by asking these questions:

Is the message received, recognized and understood as soon as you see the home page? Do the visual elements augment the message? Do attention-getting items focus you on the key points, or do they lead your eyes away from them? Does it take more than a few clicks to get to an informative page? Do you spend more time looking for something than you do reading it? Are there quick shortcuts to key places on the site, or must you take the long route to everything? Is there sufficient color and contrast to make the text easily readable? Does the font size or page density tire your eyes? Is there enough white space for the message to be readable? Is the background so loud that you can scarcely make out the words? Is it clear what are links and what aren't? Is the structure of the site sufficiently intuitive that you can find the most important things without relying on the search engine? Are the icons obvious? Can you be sure what will be at the other end of a link when you click on it? Does the use of technology add value, or is it just technology for technology's sake? Does the requirement for plug-ins disenfranchise a significant portion of the audience? Is there a lot of Web jargon? Are acronyms used and not explained? Was the application of multimedia appropriate to the audience? Teenage and twenty-something surfers often want more stimulation than their parents do.

HTML skills can be tested and graphical skills are plain to see, but Web site design sense is often best judged by asking how well a site does what it sets out to do.

After you have formed your own answers to these questions, ask the job candidate how effective the site has been in meeting his or her goals. Request supporting evidence, including log reviews, click-stream evaluations and, where they apply, such hard business metrics as lead generation numbers, lead-to-sales conversion ratios and figures on reduced customer service calls. That is a key part of the evaluation process; the candidate, after all, is asking to become a part of your business and should be able to demonstrate that he or she understands basic business rules. Some key questions to ask : What did you learn from reviewing the logs of your site after it went online? Did you find that the audience you got was the audience you expected? Did you meet or exceed your business goals for the site? If not, why not?

Experience, of course, is not unimportant, but experience as a webmaster should be considered in a slightly different light than experience in some other professions. When it comes to the Web, experience may be best measured in terms of significant learning experiences, or experience with projects that required new and different skill sets. Bear in mind that the Web candidate with three widely diverse projects under his or her belt is in some important ways more experienced than the candidate with 10 projects all cut from the same cloth.

Finally, the evaluator should ask the candidate to sit back and talk about what he or she has learned about the Web. After all, the more people have learned, the more they know. WM

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ALL WEB SITES ARE SUBJECT TO THE LAWS OF THE LAND. BUT SHOULD THEY BE SUBJECT TO THE LAWS OF ALL LANDS?

BY WAYNE BENNETT

The Surprisingly Long Arm of the Law

Once upon a time, the typical sales manager would spend weeks studying the vagaries of a new territory before dispatching a particularly adventurous rep to test its hospitality. That was in the pre-Web era. These days, electronic commerce makes it possible to sell in many countries without even knowing where they are on a map. From a legal perspective, that could be dangerous.

Why? Because some business practices that are perfectly legal in your country or state may not be legal in others. In some places, even the content of your advertisements may be against the law.

A number of U.S. courts have concluded that Web publication is comparable to broadcasting, meaning that your postings may be subject to the laws of numerous jurisdictions. In one recent case, a California couple attempted to sell subscriptions to pornographic material on the bulletin board service hosted on their living room computer, and the material was downloaded by the postmaster in Memphis, Tenn. Because obscenity is governed by "local community standards" (which are somewhat less liberal in Tennessee than in California), a Tennessee court found the couple guilty on obscenity charges. The fact that they did not purposely do business in Tennessee—or even establish a nexus by mailing brochures into the state or advertising in a Tennessee newspaper—didn't matter. The husband is now serving two years in a place where there is no Internet access; his wife is serving 30 months.

While obscenity is not an issue for most companies, the legal principle represented by the Tennessee case is. If the content on your Web site transgresses the laws of some far-off jurisdiction, you may be hauled into court there, and you will be subject to its rules—not yours. The California-Tennessee case is not an isolated one. A Connecticut trademark owner recently sued a Massachusetts domain name owner in Connecticut courts, even though the Massachusetts company was not doing business in Connecticut. (The plaintiff claimed prior rights to the domain name because of a prior trademark registration.) The court ruled that simply by "continuously advertising over the Internet" the defendant had solicited business in Connecticut. To the court, the mere existence of a Web site meant that the company was "purposefully direct[ing] its advertising activities toward" Connecticut. That interpretation is being emulated throughout the world.

So far, only a few courts have decided that the

ILLUSTRATION BY RON BROWN

origins of Web content should influence jurisdictional issues. But even those judges who have ruled against dragging local operators into faraway courts seem to be searching for answers with little regard for the technology's implications. Consider the case of Blue Note, a New York jazz club that sued an identically named Missouri club for infringing on its trademark on the Web. A New York judge refused to force the defendant to come to New York, reasoning that the Missouri club owner intended only to promote his business locally. The fact that New York users could see the site held little importance. Even the Missouri club site's link to the New York club's site presented insufficient nexus to force the case into a New York court, according to the judge. That opinion appears to conflict with the opinion of the Connecticut court in the trademark case. Considering the lack of consensus, companies had best proceed with caution.

MORE CONFUSION is brewing on another front: the legality of the actual goods and services that companies offer for sale. In many cases, goods manufactured in the United States don't meet some of the more protective and arcane directives issued by the European Community. (For example, instructions for some manufacturing equipment sold to EC countries must be in an EC language.) Liability for failure to conform with such directives—which may involve both civil and criminal penalties—is assigned to the foreign manufacturer.

Do you sell software using a license that prohibits reverse engineering? That violates public policy throughout Europe, where licenses permitting reverse engineering are required for the limited purpose of allowing users to achieve interoperability. By not including this exception in your license, you risk having the license revoked.

If Tennessee can exercise jurisdiction over citizens of California, so can France, Germany, Belgium and the Netherlands. Those are all countries where comparative advertising—acceptable in the United States—is severely limited. Coupons, discounts and special offers are restricted in Austria, Belgium and Italy. And a picture of an immodestly clad woman in an online catalog from Victoria's Secret might not meet the stringent advertising requirements of certain Middle Eastern countries. Most such conflicts are not new, but they are exacerbated by the ubiquity of the Web.

If the content on your site transgresses the laws of some far-off jurisdiction, you may be hauled into court.

Things don't get much easier even if you decide to limit your business to the United States. State laws differ with respect to the following: sales and use taxes; requirements for doing business; the annual filings needed to seek redress in a state court; securities sales and solicitations; motor vehicle sales; advertising of legal and medical services; firearms, explosives and fireworks sales; tobacco sales; insurance matters; and even charitable donations.

Does this regulatory hodgepodge mean that every company must have its lawyer review the legal constraints of every jurisdiction on the planet? No. But you can take a few precautions to limit your liability. In order to do so, you'll need to sacrifice some of that precious real estate on the very first page of your site to one or more legal disclaimers. Don't try to make do with a home page link to your disclaimers. To get the best protection, place your disclaimers right on the first page of your site. They may not mesh well with the page's graphic design, but they can help keep you out of some nasty legal wrangles.

The most important thing to include is a disclaimer about sales indicating that they will be made only in certain, named jurisdictions. Alternatively, you may state that your offer is void in those jurisdictions that do not honor all the terms of your offer and your license or contract, specifically the choice of law provisions (which presumably make your home state's laws apply). If you choose the latter route, be sure to have your lawyer beef up those disclaimers and limitations to take into account relevant international law.

As for advertising, the best you can do in these uncertain times is to warn visitors that your Web site is intended for viewing only in jurisdictions where the material does not violate local law.

All of this advice may sound overly cautious and legalistic, especially in light of the Internet's reputation as a bastion of free expression. But when you consider the potential fallout from not taking precautions, it's really a very small price to pay. This is, after all, a litigious world we live in. You may have millions more people to sell to, but you also have millions more people you can offend. WM

Wayne Bennett is a partner in the Entrepreneurial Services Group of law firm Bingham, Dana & Gould LLP in Boston. He can be reached at bennettw@bingham.com.

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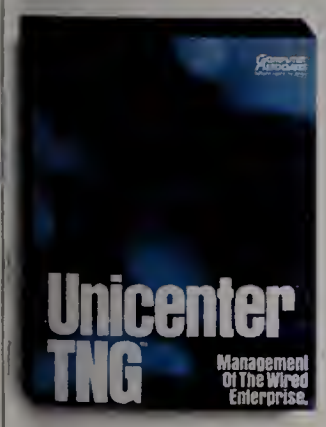

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HELP YO

The first wave of Web self-service applications confirms what banks and other businesses have known for years: Customers really like to take care of themselves

BY TOM FIELD

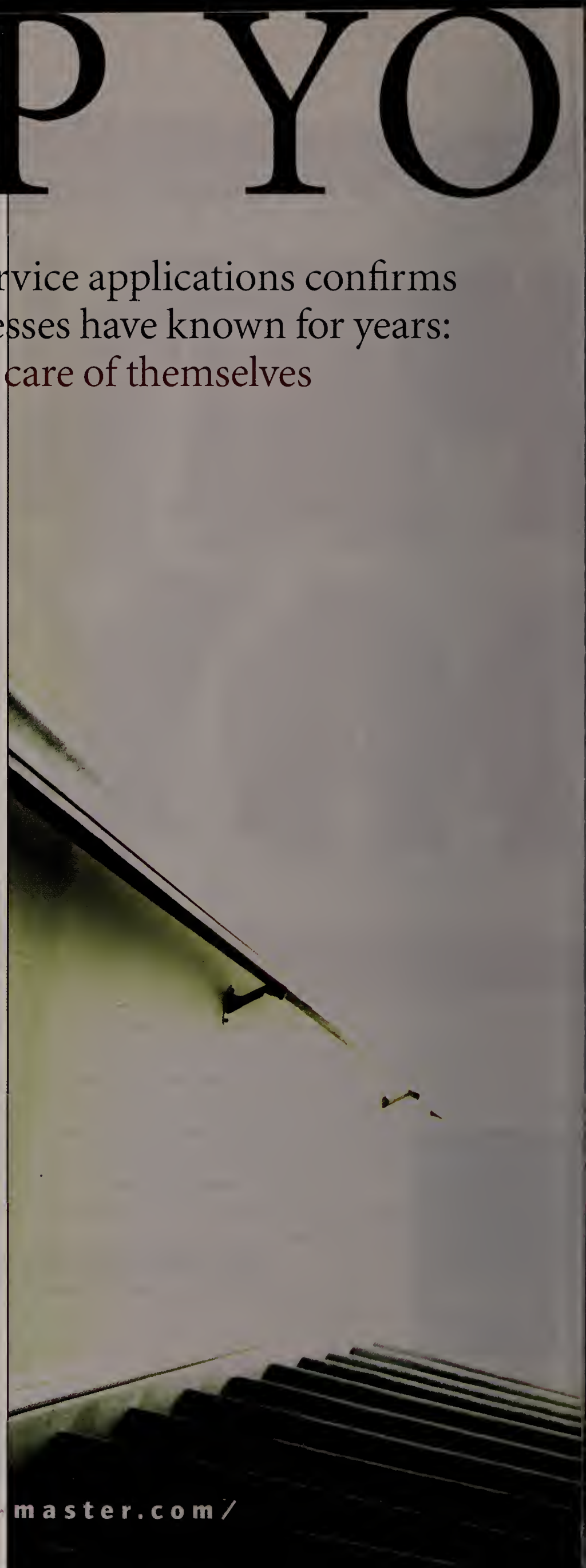
If renowned cynic and *Devil's Dictionary* author Ambrose Bierce were still alive, he might define the automated teller machine as "an infernal trick played by banks on customers to get them to do the bank's proper work."

The ATM stands in a historic line of customer self-service technologies beginning, perhaps, with the Horn & Hardart automated cafeteria and now culminating in the Web. Customer self-service is based on the highly counterintuitive idea that you can simultaneously get your customers to do your work for you (realizing great economies) and get them to thank you for it (realizing enhanced customer loyalty).

In fact, once the admittedly slow-growing acceptance of ATMs was achieved, customers found they enjoyed the control and convenience of ubiquitous 24-hour banking much more than they objected to doing the bank's "proper work." Having an ATM infrastructure became a source not just of operational efficiencies but also of competitive necessity.

We're at a similar customer self-service watershed now, as businesses and customers explore the technolo-

PHOTO BY MARK TUCKER



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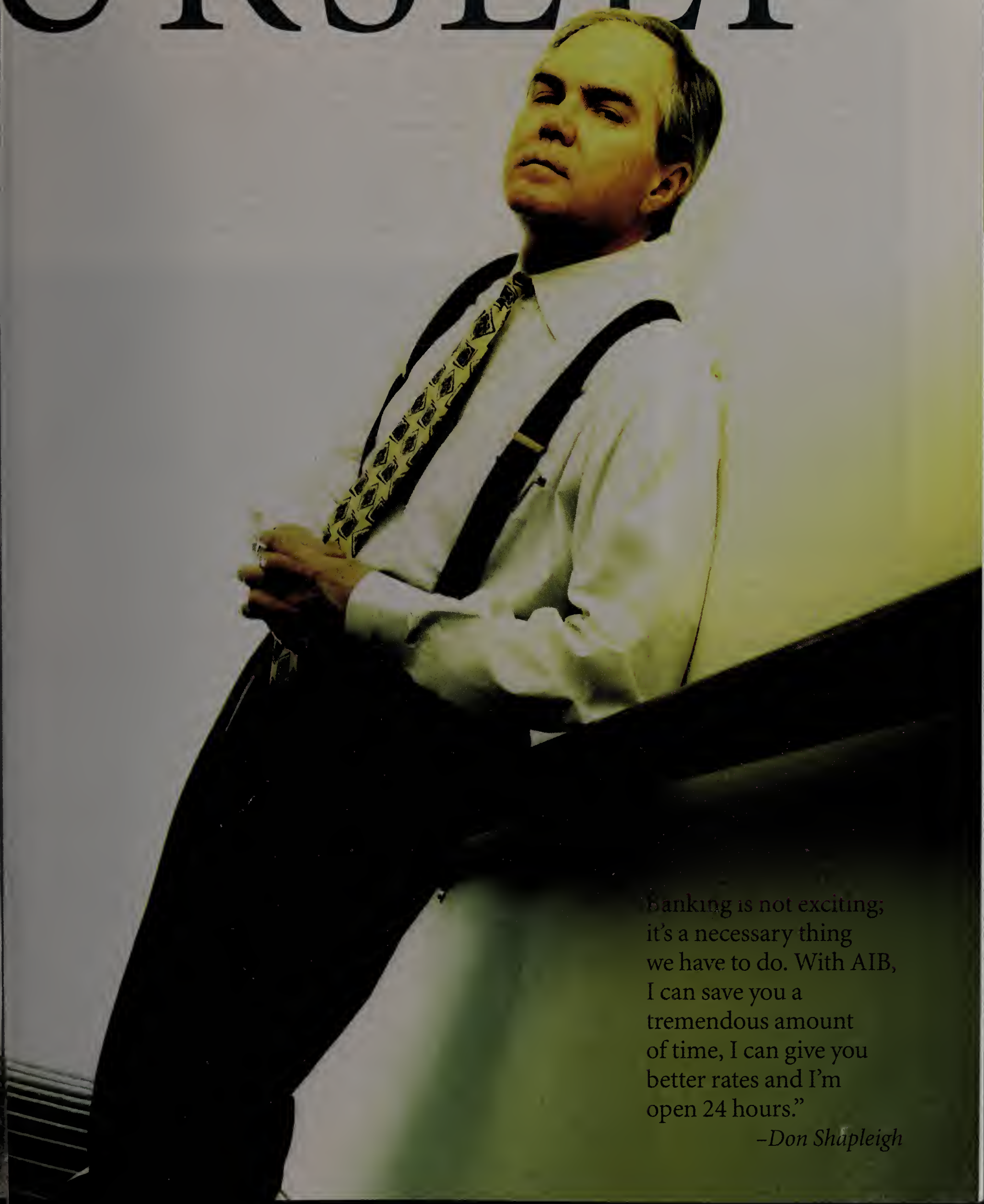


Banking is not exciting; it's a necessary thing we have to do. With AIB, I can save you a tremendous amount of time, I can give you better rates and I'm open 24 hours."

–Don Shapleigh

gies and benefits of self-service via the Web.

"This is the age of customer service," says Carter J. Lusher, a Gartner Group Inc. vice president and research director in Gartner's information technology management department. Lusher predicts that by 1999, 30 percent of all customer transactions will be electronic and self-served. Driving this trend, he says, is businesses' need to be competitive and cool.

"If you can reduce your customer service calls by 10 percent, and if your calls cost an average of $25 apiece, you can work up a pretty good ROI," Lusher says. "Also, it meets a marketing need to seem 'with it' and 'hip.' You're not hip if you're not on the Net."

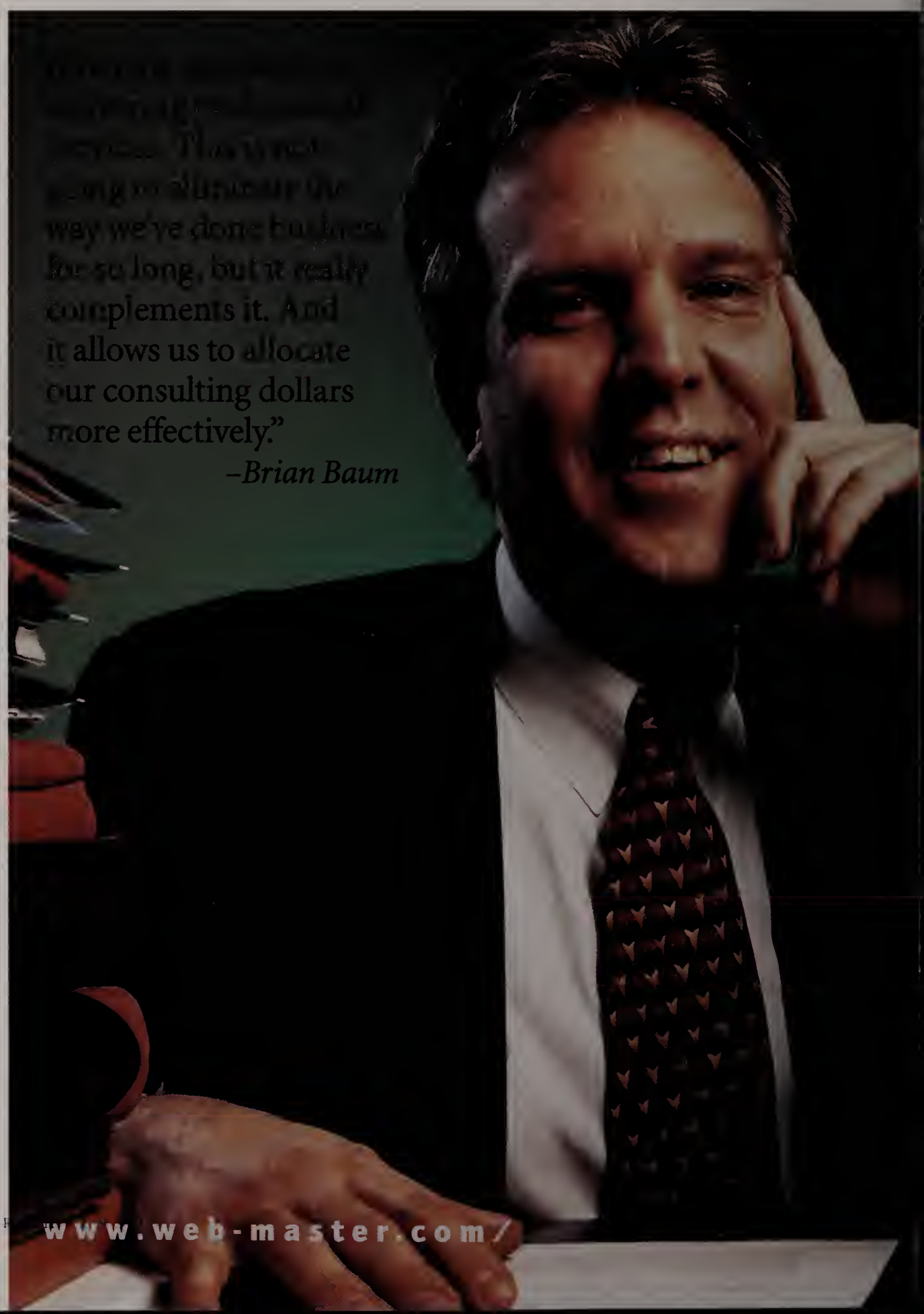
But there are degrees of hipness, ranging from straightforward Web-enabled customer service (not to be confused with self-service) to the kinds of innovative do-it-yourself interactions made famous by Federal Express Corp. and Cisco Systems Inc. What is clear is that customers approve of the self-service trend.

"People like to be in control," says Joe Alsop, president of Progress Software Corp., a developer of Internet transaction processing applications. "If the customers can get what they need and have a sense of being in control, then they really do prefer to serve themselves."

The economic bedrock of customer self-service is disintermediation—the reduction or elimination of the middle layers of labor that stand between companies and their end customers. If providing a customer self-service interface doesn't drive cost out of existing activities, it may not be justifiable solely on the basis of enhanced customer satisfaction. To illustrate the potential benefits of disintermediation, Alsop harks back to the ATM: The average bank teller is available to customers 30 hours per week; the average ATM is available nearly 168 hours per week. And where an average teller can perform 200 transactions per day, the ATM can perform 2,000—at a cost-per-transaction far lower than what is possible with a salaried teller.

"The whole trick," Alsop says, "is to get rid of the person in the middle of the transaction—not because we want to get rid of people but because we want to provide better services quicker."

As technology becomes cheaper, more capable and more accessible to a wider range of users, it becomes likely that other industries—especially consumer-focused manufacturers and retailers—will join the early self-service adopters in the business-to-business markets. And while there are indeed some technical barriers to ATM-like ubiquity (for instance, the need for more bandwidth, more-robust applications and more widespread adoption of af-



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fordable Internet service), the greater obstacle may well be the limited strategic vision of businesses themselves.

"Very few organizations have thought through a Web strategy," says I. Barry Goldberg, president of Matterhorn Consulting Services Inc. "They go into it with an attitude of 'I gotta have a Web site.' Or they look at self-service just as a means to cut costs and boost productivity."

Goldberg predicts that Internet-enabled customer self-service will follow the evolutionary pattern of sales-force automation. "First, companies will look at it in terms of productivity: 'How can we cut costs?' Then they'll look at effectiveness: 'What are we doing in the company today that we can push out to the customers and have them do themselves?'"

PHOTO COURTESY OF ERNST & YOUNG LLP

The next step is to transform the bidirectional flow of customer interaction into keener insight and, ultimately, better strategic decision making (note, for example, in the profiles below, the long-term aims of Brøderbund Software and Ernst & Young). That is arguably the alpha and omega of customer self-service. Yet, if businesses want that level of intimacy, they have to prepare for it. Doing so means allowing customer access to internal, nonstrategic systems and processes—everything in the pipeline from order placement to problem resolution. That step, which can be unpalatable to security-conscious organizations, is more a philosophical challenge than a security challenge; but once businesses make the move, they'll find it's a two-way street and that the interactivity also will allow them inside the heads of their customers to better determine customer profiles, desires and needs.

Ultimately, self-service can enable the customer relationship to begin not at the sale but at the very earliest stages of product configuration. By articulating their needs and capacities, Goldberg says, customers can demand of businesses, "Don't just tell me where my order is. Let me know what's in your R&D pipeline that's going to affect my business down the road."

Ernie

When Lee Penn, vice president of finance for The Slam Collaborative Inc., an $18 million architectural design firm in Glastonbury, Conn., is stumped by a business issue, he wishes he could walk down the hall, pop into a colleague's office and ask for advice. But the downside of working in a small-to-midsize business, Penn says, is being "big enough to need specialists like me, but we don't have duplicates of ourselves."

ERNIE: ERNST & YOUNG LLP'S virtual consultant relies on a companywide intranet that links E&Y's 21,000 North American tax, audit and consulting professionals; his nucleus is a Microsoft SQL Server database that sorts incoming e-mail questions and routes them to the appropriate E&Y staffer. Ernie subscribers gain access to the database via a private Ernie site on the Web, where the service takes advantage of the features offered by Netscape Communications Corp., which participated in a pilot of Ernie. Also, Ernie offers customers a customized news-clipping service through a link with Farcast Inc., which employs "droids"—electronic agents—to search electronic news sources and bring back news that fits the customer's stated preferences.

And so Penn turns to Ernie—Ernst & Young LLP's online consultant—a red-haired, casually dressed electronic avatar who guides questioners to the answers they need. With a few clicks, Penn calls up the Ernie Web site, types his question and submits it as e-mail. The question is routed to an E&Y consultant, who provides an answer within two business days. In addition to the e-mail service, Ernie maintains a database of common problems and solutions—a highly detailed FAQ file—that clients access on their own.

"I think it's a wonderful system," says Penn, whose office submits five or six questions a month to Ernie on topics as diverse as IS issues and the potential effects of changing an employee expense reimbursement policy. "The service is as broad as E&Y, and it's as deep as you want it to be. It fills a void I didn't know I had until I saw the capabilities of Ernie."

Ernie, launched in May 1996, is Ernst & Young's effort to meet the needs of a heretofore underserved market consisting of companies with annual revenues of $200 million or less—the sorts of businesses that occasionally need consulting services but can't afford the expense of a full-blown engagement. For an annual fee of $6,000, customers have access to Ernie's private Internet site, which also offers the FAQ database, a news-clipping service and a customized business research and analysis service.

"It's a new approach to delivering professional services," says Brian Baum, E&Y's director of Internet service delivery.

"This is not going to eliminate the way we've done business for so long, but it really complements it."

E&Y identified the need for a service like Ernie two years ago, when executives realized that, in addition to their bread-and-butter full-engagement accounts, they had approximately 9,000 small-to-midsize customers who called frequently with a variety of business questions. Those questions came in to the customers' E&Y contacts, who tried to route them to the right people and coordinate replies. That process was cumbersome at best and gave short shrift to small-business customers who, if better served, represented a potential new revenue stream. E&Y considered establishing a dedicated call center—the technology then available—to handle those queries, Baum says. "But then we realized that the Web was the best possible solution."

Since its launch, Ernie has attracted 350 subscribers from across the business spectrum, answered more than 1,300 questions and earned $1.8 million in revenue. But beyond profit, Baum says, Ernie has brought E&Y greater penetration in a largely untapped market, and it has provided a source of insight on the issues that are most important in that niche. Plus, by allowing customers to serve themselves, Ernie frees E&Y's consultants to identify and concentrate more on customers that require personal, ongoing engagements. "It allows us to allocate our consulting dollars more effectively," Baum says.

The next step is to link E&Y's customers to one another, help them develop relationships and become, in effect, peer consultants. Matchmaking is a new role for a consultancy in the business of delivering answers, but Baum sees it as a natural evolution that meets the needs of the market and exploits the Internet medium. "What's driving the market is the need for immediacy, and we've got to respond to that need," he says. "I don't think there is any other medium that could support this service."

"We're trying to give more access to our customers than we can give them over the phone. It's going to save money for us, and it's going to make tech support easier for our customers."

–Angie Simas

Brøderbund Software Inc.

AT MOST BUSINESSES, the week before Christmas is the busiest time of year. At Brøderbund Software, it's the week after that's the killer—especially at the company's call center, where customers flood service reps with a torrent of "How do I?" calls about such popular Brøderbund interactive products as Print Shop, Myst and Where in the World is Carmen Sandiego?

It was to help stem that tide that Brøderbund, just before Christmas 1995, launched a Web site offering customers the ability to access the company's internal database and answer

their own technical support questions. Beginning with a FAQ button on the Brøderbund home page, customers now can compare their questions with those answered for other customers. If they get no satisfaction there, they can submit their questions to Brøderbund's technical support staff, which promises a prompt reply.

"We're trying to give more access to our customers than we can give them over the phone," says Angie Simas, Brøderbund's online services manager. "It's going to save money for us, and it's going to make tech support easier for our customers."

In the 15 months since it launched online tech support, Simas says, Brøderbund's call center has seen no discernible decrease in calls; but 500 additional service requests per week have come in over the Web—an increase that would cost the company $265,000 per year to support with call center staff. "We're dealing with more problems using the same number of people," Simas says.

The obvious benefit to customers of round-the-clock self-service is instant gratification. "They can dial in at midnight or on the weekend," Simas says. "They aren't reliant on anyone's hours but their own."

But Brøderbund also benefits by getting a better read on product sales, flagging technical snafus and identifying the sorts of features customers might want to see in future products—in short, tracking information that a typical customer service rep would not solicit in the course of a service call. That gives Brøderbund an opportunity to enhance the customer relationship—perhaps to respond to customer profiles and actually offer tutorial services based on a customer's technical/product knowledge and hardware capabilities.

Next, Brøderbund would like to replicate on its Web site some of the customer-to-customer dialogue that occurs in independent Internet newsgroups.

According to Hugh Bishop, vice president of emerging technology research for Aberdeen Group Inc., bringing customers together can enable companies to build their own Internet communities and benefit internally from their customers' expertise. "Companies know how to build products," Bishop says, "but they don't necessarily know how to use them"—at least not as well as some customers do. And tapping into the peer-to-peer resource enriches company offerings.

Finally, greater bandwidth willing, Brøderbund, which currently delivers most of its products via traditional retail distribution, hopes to be able soon to deliver products to customers directly over the Internet.

So far, providing online technical support has been Brøderbund's biggest challenge. The company already had an in-house database of common technical problems and solutions, but that material was heavy in tech-speak and designed for Brøderbund eyes only. Before it could go online, the material had to be clarified and cleaned up.

The ongoing challenge, Simas says, is to pay equal attention to customer queries, whether they come in via mail or machine. "You've got to be there and on your toes in any way the customer wants to find you."

BRØDERBUND SOFTWARE:
Brøderbund's technical-support self-service site leverages case-based reasoning (CBR) technology provided by Inference Corp. The core of the system is a combination of Inference's CBR Express and CasePoint products, which use intelligent search capabilities to capture, retrieve and present product information in a database that is easily accessible to internal and external users. CBR Express retrieves and stores the case-based knowledge, and CasePoint searches that data for information requested by the user. Using an intuitive, dialog-based interface, customers get answers to automatically generated questions that help them narrow searches and retrieve information.

Atlanta Internet Bank

TWO YEARS AGO, Don Shapleigh barely knew how to plug in his computer, never mind plug into the Internet. Now, as president of the new Atlanta Internet Bank (AIB), he's extolling the self-service virtues of online banking.

"I realized a little later than some, but earlier than a lot of folks, that this is the way to go," says Shapleigh, a 23-year veteran of retail and corporate banking whose online venture went live last October, offering customers the ability to serve themselves through AIB's interest-bearing checking accounts, direct deposit, account transfer capability and electronic bill payment.

AIB is not the first bank to offer online services (Wells

PHOTO BY KENT HANSEN

Fargo & Co. and Security First Network Bank FSB helped blaze that trail), but it is among the first to be all Internet, all the time. There are no physical branches; the only AIB office is Shapleigh's own, the top floor of an Atlanta office condominium, where 14 AIB employees staff a customer support call center. This is part of the AIB premise: that an online bank, unfettered by the overhead costs of buildings and staff, can offer 24-by-7 service and more-attractive interest rates to customers who deposit money electronically and withdraw it via checks or ATM cards.

Conceived by T. Stephen Johnson, an Atlanta bank consultant, AIB was launched by a group of investors including Carolina First Bank, under whose sponsorship the bank was opened, and Kelton International Ltd., a British investment banking company. In its first two months, dangling an introductory 7 percent interest rate on money market accounts as a carrot, AIB signed up 700 money market and checking account customers from around the United States. Customers access password-protected accounts via AIB's Web site. Once authorized, they can transfer money, pay bills or just check their accounts—at their leisure, not just during "banker's hours."

What's the lure of self-service banking? Convenience, says Shapleigh. "Banking is not exciting; it's a necessary thing we have to do," he says. "With AIB, I can save you a tremendous amount of time, I can give you better rates and I'm open 24 hours."

Typically, new customers test AIB by opening checking accounts and paying a couple of utility bills. Then, when they see those transactions succeed, they start paying all their bills online, open new accounts and use AIB's "bank mail" to send messages to service reps. So far, AIB is open only to the consumer market, but Shapleigh plans to expand into commercial banking and provide such products as loans, small business and brokerage services, independent retirement accounts, certificates of deposit, and credit and debit cards.

Shapleigh says self-service banking is driven by one basic banking metric: cost. A typical bank transaction costs a bank $1.07, he says; an Internet transaction costs a penny. William A. Soward, director of financial services marketing for Edify Corp., whose Electronic Banking System provides AIB's operational platform, says online banking allows banks to develop closer customer relations—to better identify and meet individual customer needs based on customer profiles and habits while offering the convenience of 24-by-7 service. In the future, he says, banks will draw from individual customer profiles to sell products proactively around those customers' life events: home purchase, education and retirement. As a result, banks will be able to anticipate rather than respond to customer needs over the life of a banking relationship. "There will be much more of a connection between the customer and the supplier," Soward says. "It's a new way to market and sell to customers that's never been available before."

Better customer service is AIB's self-service backstop—one Shapleigh recently encountered when he tried to access his own account from home on a weekend but forgot his new password. Because of AIB's "three strikes" rule—if you fail three times to access an account, you are denied entry—Shapleigh was actually locked out of his own bank. Ten minutes later, a service rep who had noticed the lockout called, greeted Shapleigh (without knowing Shapleigh was the bank president), referenced his log-in problem and gave him a toll-free number to call for immediate assistance. "I told him two things," Shapleigh recalls. "I said, 'First, I'm the CEO of the bank, and, second, you've just shown the type of customer service that's going to make me a star.'" WM

Staff Writer Tom Field can be reached at tfield@cio.com

FINDING IT ONLINE

AT&T WorldNet Service
www.att.com/worldnet

Atlanta Internet Bank
www.atlantabank.com

Brøderbund Software Inc.
www.broderbund.com

Cisco Systems Inc.
www.cisco.com

Edify Corp.
www.edify.com

Ernst & Young LLP's Ernie
ernie.ey.com

Farcast Inc.
www.farcast.com

Federal Express Corp.
www.fedex.com

Inference Corp.
www.inference.com

Netscape Communications Corp.
www.netscape.com

Security First Network Bank FSB
www.sfnb.com

Wells Fargo & Co.
www.wellsfargo.com

ATLANTA INTERNET BANK: The online bank's two major vendors are AT&T Corp., which houses AIB's physical hardware and hosts the AIB Web site on the AT&T WorldNet Service, and Edify Corp., whose Electronic Banking System (EBS) provides the operational platform. EBS is a software application that allows banks to deploy a suite of automated banking services via the Web, leveraging the latest Web browser technology to provide intuitive and frames-based user interfaces. Home banking, bill payment, message center and customer service teleconferencing all are part of the integrated application modules, which can be accessed via several customer options, including telephone, fax machine and electronic kiosk. EBS also uses the visual customization tools of Edify's Electronic Workforce, which employ electronic software agents to respond proactively to user inquiries; platform flexibility lets banks update and add to their electronic services and facilitates integration with legacy and client/server systems.

CIO PERSPECTIVES

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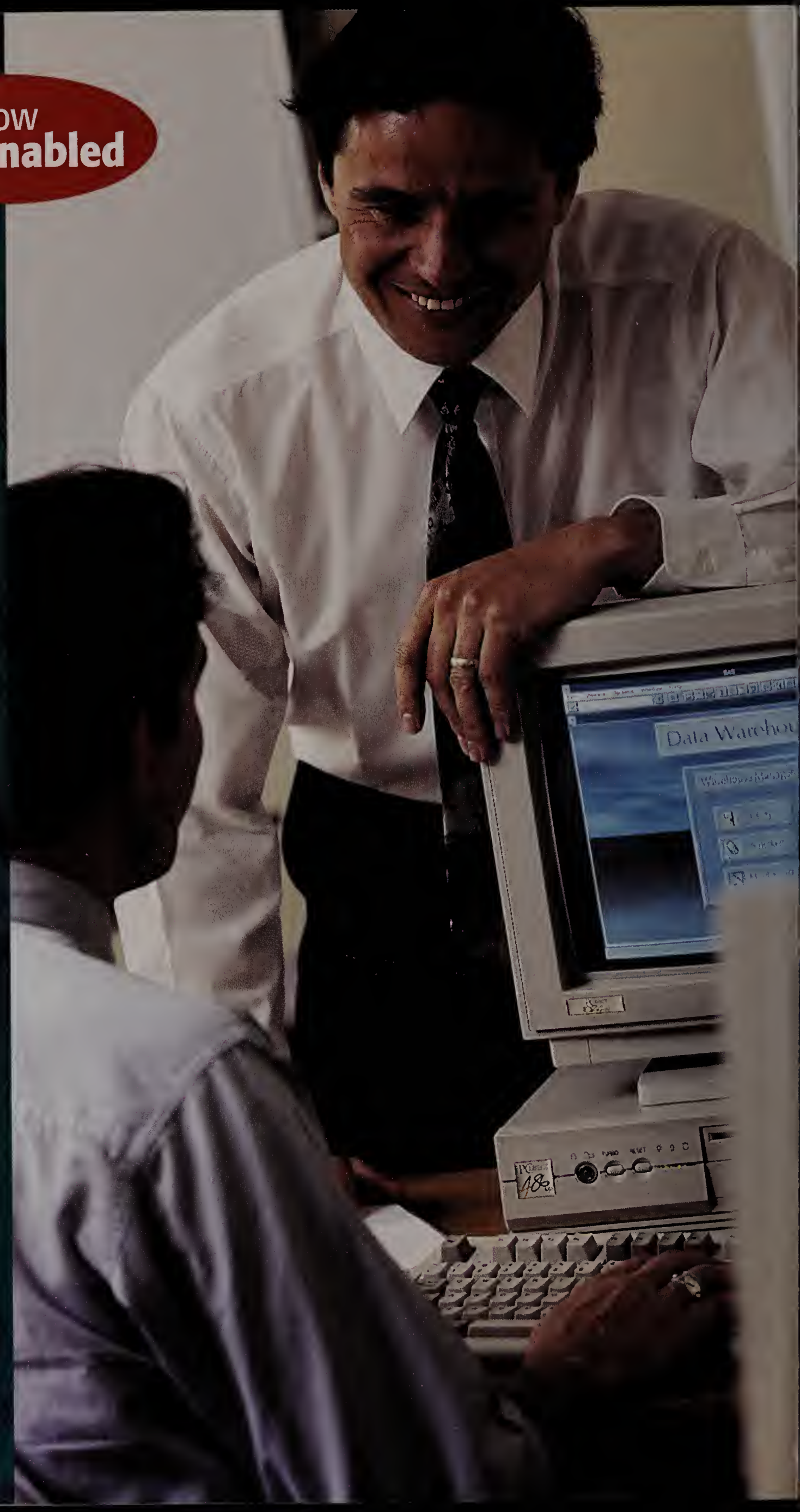

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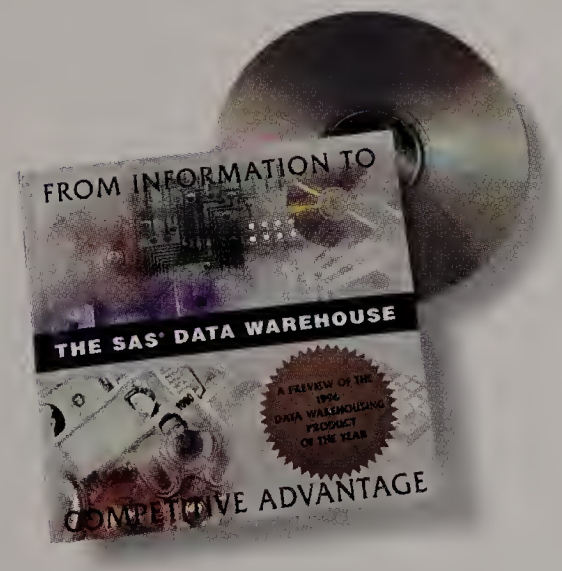

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CGA52-52
CGA52-56
O.D.
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CGA64-112
CGA52-24

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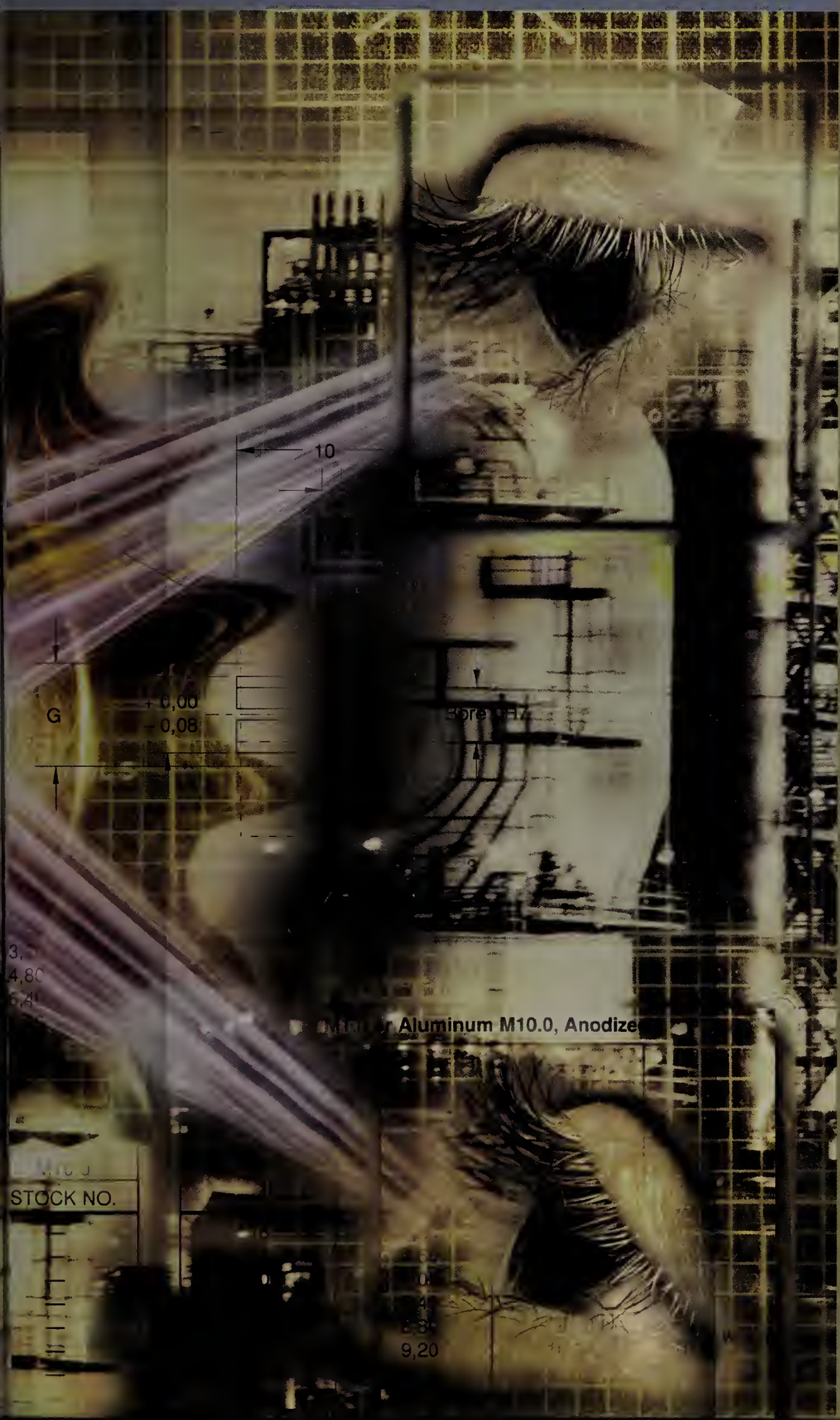
FUNCTION KEYS

BY FRED HAPGOOD

ILLUSTRATION BY ROBERT ATKINSON



If your intranet doesn't include manufacturing, then you're not making the most of your production cycle

INTRANET success stories have been rolling in from every corner of the corporate landscape but one: manufacturing. Benefits have been announced for sales (distribution of up-to-the-minute information to geographically dispersed reps), product development (support of project-centered intracorporate newsgroups), customer service (rapid retrieval of solutions to problems), human resources (distributed access to updatable benefits policies) and almost every other corporate division. Manufacturing gets mentioned, if at all, as being somewhere on the "to do" list.

The reason for the gap is that manufacturing faces information management issues that are far more complex than those in any other area. These issues include constantly changing supplier and partner networks, sprawling inventories, volatile cost environments, multiple data types, large equipment investments and complex, time-constrained design-assembly interactions. As a result, many leading-edge companies have become cautious about introducing computers in any form onto the floor, having learned from bitter experience the difficulty of reducing such complexity to algorithms. (Early in this decade, a group of MIT analysts found that the correlation be-

tween manufacturing productivity and automation in the automobile industry approximated zero. The least automated plant, managed by Toyota Motor Corp., was twice as efficient as the most automated.)

Some companies still rely on "analog" cueing elements, such as whiteboards, to control parts flow instead of using software to calculate work orders. Where manufacturing information systems do exist, they tend to be special-purpose, custom-built legacy lash-ups, unintegrated with one another and raising complicated compatibility issues with any enterprisewide network, intranets included. Finally, security concerns in the manufacturing function are often intense, so an intranet's most salient benefit—simple and general access to information—becomes a source of anxiety.

On the other hand, leaving manufacturing unplugged undercuts the whole point and promise of intranets, which is to give all parts of the organization access to all of its information resources. No company can hope to optimize its production cycle with such a critical piece left out.

One of the first companies to try to close the loop was Duke Power Co. of North Carolina. For several years Duke has supported database searches for equipment designs and operating specifications with a clever hierarchical retrieval routine called PlantView from EA Systems Inc. An employee using PlantView to search under "electrical" might start with the circuitry layout of the whole plant and click through such subsets as "wings," "floors" or "rooms," each time seeing more-detailed schematics of the area. Users can view every important system in the plant—from skeletal steel to heating—with the same flexibility.

Different subsets of systems can be formatted together to create a view of all the equipment on a given wall or in a room. Plant views can be expressed in two or three dimensions from any angle and be used to retrieve the operating values and performance specifications (temperatures, pressures, flow rates) of any piece of equipment.

Like other high-end computer-aided engineering packages, PlantView can be intimidating to an untrained user, says Fred Goolsby, senior engineer and system developer. "Maybe only 1 percent of the company ever got the training necessary to use the product," he says.

Duke's manufacturing organization, therefore, was faced with a problem: How to make PlantView and some related engineering tools available to employees who needed them occasionally but not frequently enough to justify training them? At the same time, a group responsible for the company's network infrastructure was busy converting Duke's corporate network to TCP/IP in order to improve its reliability and performance. Although Goolsby says the group wasn't aiming to build an intranet, once the protocol was in place intranet functions began popping up all around the company. The interface with PlantView was part of that flowering.

By developing an interface that allowed anyone to access PlantView and other engineering tools over the intranet, Goolsby opened the system to many more constituencies, including maintenance technicians, plant engineers and operations personnel. Employees are now so familiar with the standards that they mostly train themselves, he says. And the impact on his own workload has been negligible: Goolsby estimates that he has spent only 10 percent of his time in the last nine months developing, maintaining, and enhancing the interface.

Goolsby says he expects shortly to add access to documentation of operating procedures and to the scheduling software used by maintenance and process engineers. That way, a PlantView user can check out systems or subsystems at both a specific location and a specific time. For example, someone calling up "electrical," "Room 999" at "7/1/97" would see what the system will—or did—look like at that place and time.

Another company experimenting aggressively with putting manufacturing data on its intranet is Silicon Graphics Inc. Until recently, Silicon Graphics kept the different types of data used by manufacturing (materials requirements, finance, CAD documents, routing and control) in different systems, and each had its own interface. Then in 1996 Bob Zalusky, a senior analyst in the manufacturing information systems office, wrote a program called Pole Vault that sits on Silicon Graphics' intranet and provides a common interface to all those databases. A user can enter a part number—or part of a part number—and retrieve data on such things as stocks, sales history, purchase orders, work

Challenges

INFORMATION MANAGEMENT: Information management issues in manufacturing tend to be very complex, involving sprawling inventories, time-constrained interactions and changing relationships and costs. Intranets open up complex systems to new constituencies and aggregate multiple data types under a single interface.

SECURITY: Manufacturing data—what a company is ordering and using, which priority orders it has and from whom—is extremely sensitive. Companies may choose to make only some content available or to copy certain subsets of data from the corporate intranet over the firewall onto an external server. The best solution, however, may be to build a whole new security structure based on strong encryption.

GRAPHICS: Manufacturing relies much more heavily on graphics than do other divisions. However, the agreement on VRML 1.0 and 2.0 standards and the arrival of fast, cheap, two- and three-dimensional accelerator boards have lowered those barriers.

ILLUSTRATION BY ROBERT ATKINSON

"The benefits are faster exploration of more ideas, better feedback capture and shorter development cycles." *–Jim Smith*

orders and yield and quality drawings.

"The virtue is that it opens up the system for casual users," says David Fairbanks, director of Silicon Graphics' IS office. "If a salesperson in Sydney wants to know when and where to get some field-replaceable boards, he can find out on the spot. If a person in marketing needs the current revision of a bill of materials to prepare a forecast, he or she no longer needs to be familiar with Oracle.

"Our manufacturing concern in Cortaillod, Switzerland, uses board assemblies routed through our factory here in Mountain View," says Fairbanks. "The production and materials people in Cortaillod can use Pole Vault to determine the status of our deliveries to them. They need to view their pending sales orders against our inventory levels in order to forecast delivery schedules. Pole Vault lets them do that without the expense of special training."

In addition, Pole Vault lets selected vendors access the latest revisions of part drawings. The vendors use security certificates to enter the Web site and are restricted to the drawings for which Silicon Graphics has approved list entries for their IDs. "We save hundreds of person-hours this way and speed the process of getting information to our partners," says Fairbanks.

Perhaps the leading application of intranets in manufacturing is support of manufacturing management. Silicon Graphics' intranet is being used to document and process inventory requisitions, part-number requests and even time cards. The site also includes a daily revenue page, updated every 15 minutes, that allows senior managers to see the company's financial performance. Another feature continuously tests database performance according to several metrics and posts the results. That removes the load that was imposed when everyone in the company ran individual checks, which Fairbanks says happened so often that it became a major system burden. "We were crushing the system by observing it," he says.

Sony Corp.'s Sony Technology Center, manufacturer of 32-inch picture-tubes, has come up with another way of exploiting its intranet: It uses the system to deliver financial information to manufacturing personnel. That is part of an innovative practice called open book management, which holds that allowing workers to monitor the profit-and-loss performance of the production line leads directly to more adaptive performance. Sony's intranet also carries data on quality measurements—such as defects and rejects—as well as maintenance and training schedules, FAQs on everything from compensation to safety, inventory, project status and GIF files representing various production measures, says Line Production Manager Kirk Imamura.

Most of these early manufacturing intranets were custom-built, either in-house or by consultants (Sony's system, for example, was created by Digital West Media Inc.). But increasingly, vendors are introducing products that allow nonprogrammers to design comparable applications. For example, OneWave Inc. makes a line of tools that abstract the outputs of legacy and other application systems as generic data objects. The objects can then be retrieved by OneWave agents and read as applications running on ordinary browsers. The point is to lay down an easy migration path from any network topology or suite of applications—mainframe, client/server or established intranet.

Manufacturing information is often highly time-sensitive, making retrieval systems based on files—which are difficult to update continuously—inconvenient. Such information is more usefully retrieved using common gateway interface scripts, which fetch data from several databases, slot it into an HTML template and then serve the completed template as a virtual file to the user. Until recently, writing such scripts required knowledge of a computer language, but some new products, such as InfoEngine from Control Data Systems Inc. allow users to write these scripts within a simple, familiar HTML format.

Management's greatest anxiety about bringing intranets onto the shop floor may well be security. What a company is ordering and using, which priority orders it has and from whom, whether schedules are being met and what cost-cutting lessons are emerging from direct experience can be very sensitive information.

One way to manage intranet security concerns is to make content available to all employees but restrict what gets posted and isolate the system behind a firewall. "We could put user ID/password-level protection on certain pages, but we have chosen not to do this," says Goolsby. "We consider that anyone within the company should have access to this information." A second approach is to copy certain subsets of data from the corporate intranet over the firewall onto an external server. While that works, the difficulty of managing two nearly identical data stores, one of which is always as much as one full restore cycle behind the other, makes it a stopgap measure.

A third approach is to abandon the firewall entirely and

"We save hundreds of person-hours this way and speed the process of getting information to our partners." *–David Fairbanks*

instead build a whole new security structure based on strong encryption, using such nascent technologies as public and private keys, digital signatures and certification authorities. Those tools allow for a distributed, decentralized security structure that can be configured on the fly to include qualified users from anywhere on the Internet.

One tool that makes that third option possible is TradeVPI 2.0 from TradeWave Corp. Suppose several companies have teamed on a project and that some employees from each company need access to other participants' databases. Each company appoints a registration agent, who generates one or more asymmetric key pairs for each employee on the access list.

The agent distributes one key from each pair to the proper employees and hangs the other one—called the public key—on a server, with a certificate listing the kinds of information that specific employees can read. All data access requests are channeled though the server, which logs the request in order to build an audit trail and checks to see if the requester is cleared for that data. If he or she is, then the data is fetched by the server, encrypted with the employee's public key and sent to his or her account, where it is decrypted by the employee's private key. New key pairs can be generated for each transaction.

TradeVPI is designed to support one-time log-ins; the server handles sign-ons, user IDs and passwords for all the systems in the "virtual network." It is being used widely by the electrical power industry to secure excess capacity transactions (see "Wired," *WebMaster*, February 1997).

A SUBTLE but important impediment to linking manufacturing to corporate intranets is that manufacturing relies much more heavily on graphics than do other divisions. In the past, intranets have lacked the tools required for the manipulation and transmission of large graphic files. However, the recent agreement on VRML 1.0 (graphics) and 2.0 (animation) standards and the arrival of fast, cheap, two- and three-dimensional accelerator boards have lowered those barriers. By the end of 1997, all new computers will come with microprocessors optimized for multimedia support.

Nortel Technologies is already publishing its three-dimensional models in virtual reality modeling language. The designs are created on CAD workstations and then saved to VRML using Silicon Graphics' Cosmo suite of tools, says Senior Engineer Jim Smith. "Our intranet pages can offer much more than traditional engineering documentation," he says. "The benefits are faster exploration of more ideas, better feedback capture and shorter development cycles." Smith places special emphasis on the savings that can come from reducing miscommunication between process engineers and the shop floor. With animation it is possible to show Tab A going into Slot B from any perspective. A person can even sit right on the lip of the tab and ride it down through the slot. The potential for confusion produced by poorly written documentation is greatly reduced.

The growing use of VRML in manufacturing demonstrates that integrating such data-rich environments into an intranet will require information management tools of exceptional power. But once the tools have done the job in manufacturing, they may find applications elsewhere. For instance, Lockheed Martin Missiles & Space is using VRML to build a three-dimensional training environment in which employees can learn to operate large pieces of machinery. In time, training in such virtual environments might become standard.

Most physical artifacts face assembly/disassembly several times over their life cycles: at different stages of manufacture; in packaging; possibly at the vendor's; in the home or on the shop floor; and during maintenance, moving and disposal. Considerable time and energy gets lost at each stage. With an intranet employing VRML, basic designs could—in theory—accompany the product all the way down the value chain, allowing users at any stage to see exactly how to manipulate the product regardless of perspective. Eventually, the experience gained in bringing intranets to manufacturing might end up bringing them to all of us. WM

FINDING IT ONLINE

Control Data Systems Inc.
www.cdc.com

Digital West Media Inc.
www.dwmi.com

Duke Power Co.
www.dukepower.com

Lockheed Martin Corp.
www.lmco.com

Northern Telecom (Nortel)
www.nortel.com

OneWave Inc.
www.onewave.com

Silicon Graphics Inc.
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it's a Wi ed Wi Wo d

For 50 years, the World Bank has helped developing nations by building essential infrastructures such as transportation and agriculture. Now a new World Bank project gives them something even more valuable: information.

By Christopher

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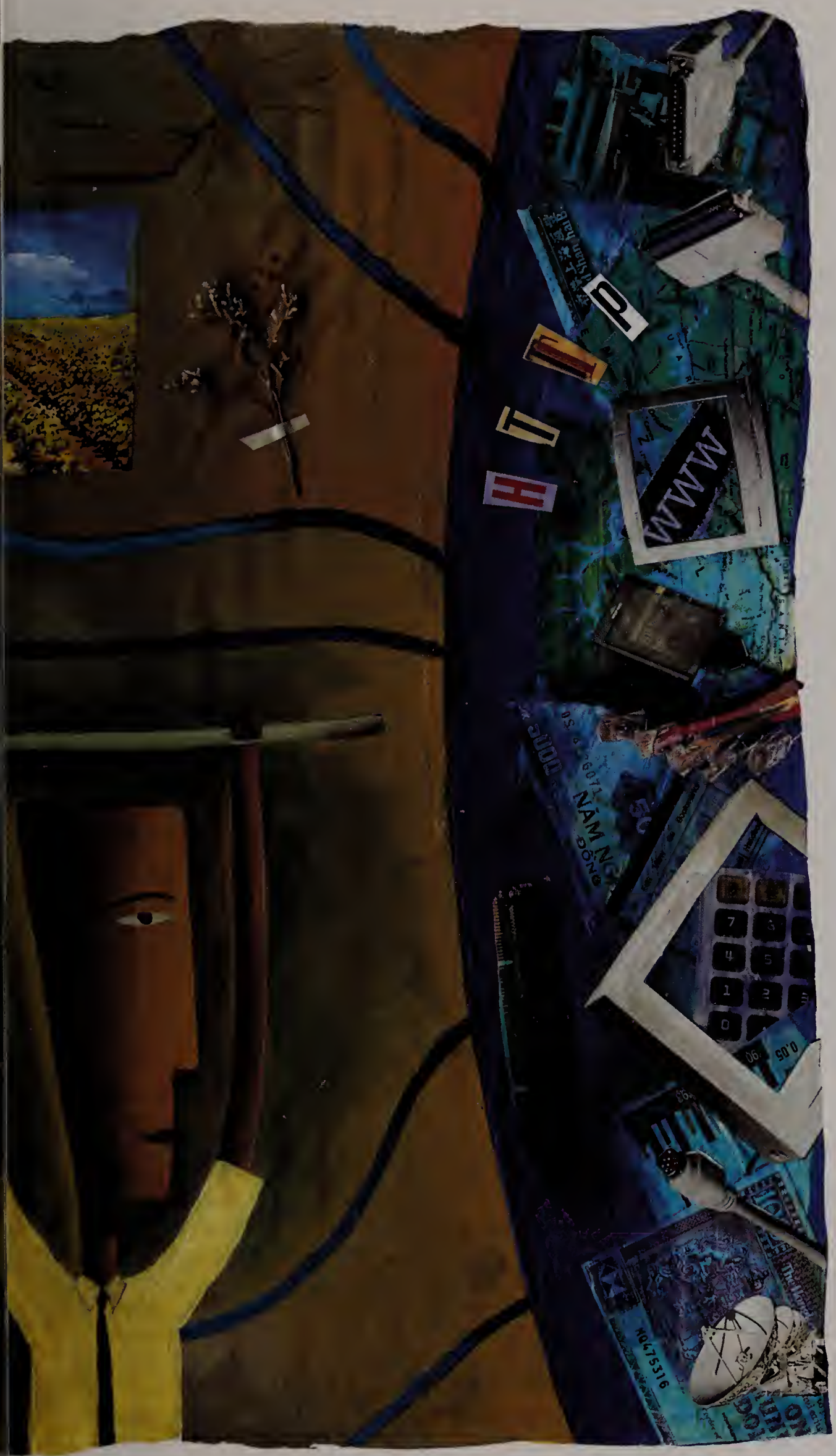


Early last year,

when a U.S. press official arrived in a remote and rugged corner of Zambia to monitor a local election, he met up with an expatriate relief worker who had been laboring in the isolated backwater for five years. The press official asked how the relief worker had managed to survive for so long in a place without newspapers, television or reliable phone service.

"Well," the relief worker replied, "I read *The Washington Post* every morning on the Internet."

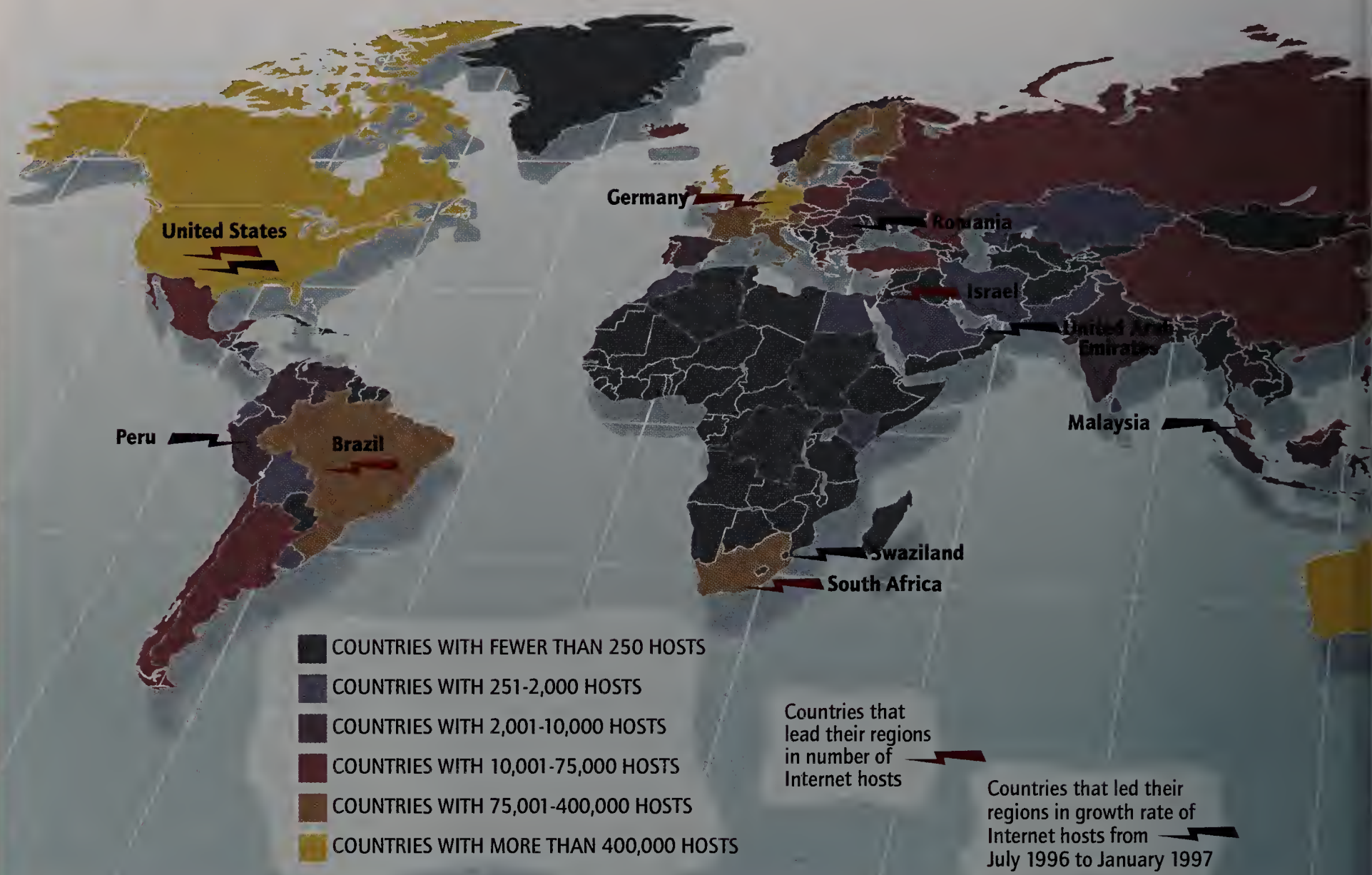
In a country like Zambia, where there is only one library, the Internet is, of course, more than a handy way to read the newspaper—it is a lifeline to information that most Zambians had never imagined they would see. And for global organizations like the United Nations or the World Bank, it offers a communications tool that is so thorough and so immediate that missions that seemed impossible a few years ago are suddenly achievable.

In the case of the World Bank, which lends or gives away billions of dollars each year to developing countries for infrastructure improvements, as well as health and education, that kind of access to information could be the key to accomplishing its elusive core mission: to help developing countries hop on the faster-moving economies that drive the developed world. Information, after all, has always been the World Bank's most important internal currency. Now that currency can be placed in circulation in its poorest client countries.

"An Internet connection gives the countries of Africa a better chance of attracting companies," says Vincent Hovanec, director of corporate communications for Global One, a joint venture of Sprint Corp., France Télécom and

The World Series

Most of the world is ready to do business online, but some countries are more ready than others. The map shows the number of Internet domains registered under country-specific domain names, such as ".uk" (United Kingdom) or ".fr" (France) as of January 1997. In all countries except the United States, the vast majority of Internet domains are registered under country-specific domain names.



Source: Mark Lottor, Network Wizards (*www.nw.com*), February 1997

Deutsche Telekom. "If you have Internet connectivity, then global information access is not an issue. That's significant because then the Cameroons of the world can at least try to make themselves attractive to multinational corporations."

In many parts of Africa the cost of living is low, but the price of even the most basic information is astronomical. A telephone call to New York from Tanzania, for example, costs $7.50 per minute, according to World Bank estimates. At that rate, a 10-minute call would consume the monthly wages of the average Tanzanian. Sending a two-page fax costs $50—and one has to hope the images come through intact, which they rarely do, given the neglected state of the phone network in Tanzania.

Such circumstances are part of the reason that even the most global of commercial banks and businesses have difficulty justifying the risks of doing business in places like Tanzania. But now, inexpensive store-and-forward e-mail links and small, self-sufficient, locally managed Internet service providers (ISPs) are bringing developing countries out from behind the wall of communications isolation.

Connectivity has dramatic implications for the World Bank's internal operations as well as for its mission. Six thousand of the organization's 10,000-member staff are out in the field at any given moment. And when the World Bank says someone is "out in the field," it means it.

Three years ago, the bank's "country teams" at its Washington headquarters relied largely on hallway conversations with jet-lagged colleagues, dated field reports and two-week-old newspapers to stay current. To improve the flow of information to and from Washington, the bank has rebuilt its internal computing infrastructure to give each of its 97

GRAPHIC BY JOHN VAN PELT

www.web-master.com/

offices around the world access to its internal network through the Internet or leased lines. A content-rich external Web site helps visitors and staffers navigate the bank's bureaucracy. Internal network users can use the intranet to do full-text searches of at least 10,000 of the bank's reports. The intranet also catalogs what is perhaps the bank's most important resource of all: the databases on which its lending decisions are based. The home page gives staffers a place to share their latest findings.

"We have a number of major databases in the bank that everyone is aware of," says Ramesh Siva, chief of the Information Delivery Unit in the World Bank's Information and Technology Services Department. "But someone may have a small database they've developed—a tracking database for HIV in Latin America, for example—that their regional colleagues may be aware of but no one else in the bank knows about. This gives them an easy way to share and access that data."

The World Bank's intranet is also linked to sister relief organizations such as the United Nations, and its Health Services Department hosts a private travel and health site that it updates with the help of various U.N. agencies.

THE WORLD BANK'S INTEREST in Internet development is twofold. First, it depends on its own Internet connections to serve its employees and clients in remote areas. And second, the bank's services increasingly include financing the development of private Internet connections. Though information technology has long been a part of the bank's infrastructure projects, it has rarely been the primary focus of its loans. In September 1995, however, the bank created a new division, the Information for Development Program (InfoDev), that is dedicated to financing IT infrastructure in developing countries. And while the program isn't noteworthy for its cash reserves—in 1996 the bank's member countries pledged $4.4 million, a minuscule amount compared with the $21 billion in loans approved by the bank in 1996—it has already agreed to finance eight geographically diverse projects, including distance learning in Africa and computer education in Jamaica. Most significant, perhaps, is that InfoDev illustrates the World Bank's new-found belief in the power of Internet connectivity to alleviate poverty in the developing world.

As always, the bank has statistics to support its convictions. Telecom infrastructure—the backbone of any substantive computer network—has become so crucial to developing countries that the per capita density of telephone lines is one of the most reliable predictors of economic vitality—better even than the old economic metric king, gross domestic product (see "Wiring the World for Business," Page 54). "We don't yet know all the things that a computer network can do, but it can now stand to a fair degree on its own as an infrastructure piece for these countries," says George Sadowsky, vice president for education and a trustee of the Internet Society and an InfoDev technical advisor. Sadowsky argues that the Internet may be Africa's best route to economic and political stability.

Global One's Hovanec, who spent much of the 1970's working in Africa, agrees. "When I was in Africa in the seventies," he says, "the constant refrain from our multinational Fortune 500 companies was that they wanted to have the same telecom capabilities in Lusaka [the capital of Zambia] as they had in London. They didn't care how it was done as long as they had access to information any time, anywhere. Internet connectivity comes as close as you're going to get to the any time, anywhere model. Never before has

What Is The World Bank?

The World Bank is a group of agencies that lends money to the governments of developing countries for infrastructure projects such as power plants, education and medical facilities. The World Bank's annual report describes its mission this way: "To promote economic and social progress in developing nations by helping raise productivity so that their people may live a better and fuller life."

World Bank Tech Support

The World Bank has an enterprisewide peer-to-peer network of over 10,000 desktops running TCP/IP and Banyan Systems Inc.'s Vines for local file and print-share services. The bank is standardized on the Netscape Navigator browser and is in the process of migrating to Lotus Development Corp.'s Lotus Notes. The bank's intranet services are hosted primarily on open Unix platforms including Digital Equipment Corp.'s Alpha, and Sun Microsystems Inc. and Microsoft Corp. Windows NT servers.

someone in Lusaka been able to access information from the lifeline of a corporation with the ease they can now, and that's a new reality in today's business world."

The World Bank has spent 50 years trying to ameliorate disadvantages, and it has seen decidedly mixed results. According to a World Bank study of a large cross section of its projects in 1995, only 46 percent were considered likely to have "sustainable" benefits after the project completion date. The bank has acknowledged a "need to instill an organizational culture based not on [loan] approvals but on results, and not on the quantity of lending but on the developmental impact of loans and other services," according to a 1996 internal task force report.

Often, the bank's success is hampered by the limitations of its clients: The governments to which it lends lack the technical skills to plan, build and maintain complex infrastructure projects. Better information, bank officials say, may be more important than money in preventing such failures, and the Internet has become the richest, most powerful information lender in the world.

In Africa, some World Bank staffers are helping to build what is called "local capacity"—economic jargon for the ability to do something yourself. Robert Hawkins, information specialist in the bank's Africa department, and Eugene Boostrom, senior public health specialist at the Human Resources and Poverty Division of the bank's Economic Development Institute, are two of the primary advocates within the bank for pushing Internet connectivity out to the populations it serves. With the support of the Mozambique "country team" at the World Bank's headquarters and the resident mission staff in Mozambique, Boostrom and Hawkins coordinated the bank's support for the creation of the country's first leased-line connection to the Internet outside the World Bank's private network.

"We gave clients in Mozambique access to our own [leased-line] network so they could send e-mail back and forth to Washington," says Hawkins. "It worked great, but it wasn't encouraging the development of local connectivity."

Hawkins and his colleagues realized that the best encouragement the bank could offer was to focus on creating a community of users rather than a network of PCs. The Eduardo Mondlane University in Mozambique's capital, Maputo, seemed like a good place to start. Hawkins installed the modems in the heart of the university's rudimentary computer network and then watched as students flocked to him for advice and training on how to get on the Net.

As the Mozambique pilot grew, another project, ZamNet, was rising from its beginnings as a small, low-tech network using FidoNet store-and-forward technology to become Zambia's first ISP, with 1,500 paying subscribers. A $122,000 grant from the World Bank's Institutional Development Foundation in 1994 got ZamNet off the ground, says Mark Bennett, who, as the former director of the computer center at the University of Zambia in Lusaka, led the project.

The Zambian government gave Bennett another necessary resource: independence. Zambia deregulated its moribund telecom infrastructure in 1994, clearing the way for ZamNet to become an independent, privately owned entity. Bennett used the university's beefed-up network as the backbone for offering ISP services—for a fee—to support the growth of the network beyond the walls of the university. Fees charged to private-sector users now pay for expansion of the network and subsidize Internet use by the university, the government, and the health and public service

Wiring the World for Business

EUROPE

Eastern Europe—one of the fastest-developing regions for Internet growth—is limited in potential only by the speed at which it privatizes. The countries that have privatized the fastest since 1989—among them the Czech Republic, Croatia, Poland and Hungary—have also seen the largest increases in their gross domestic products, according to World Bank findings.

Eastern Europe views Internet connectivity as a hedge against the return of totalitarianism. Romania, formerly one of the Eastern bloc's most isolated and repressive regimes, is installing Internet connections faster than its neighbors—the number of Romanian Internet host domains nearly tripled in the first six months of 1996, from just under 1,000 to nearly 3,000, according to statistics compiled by Mark Lottor of Network Wizards (*www.nw.com*).

LATIN AMERICA

Though South America is fully connected to the Internet, the quality of services is "all over the map," according to George Sadowsky, vice president of education for the Internet Society. The differences among countries can often be chalked up to the amount of deregulation or privatization within national telephone companies, known as PTTs. Major markets such as Mexico, Brazil and Chile have all announced plans to overhaul their state-owned PTTs and open the telecom market to varying levels of private competition. In Chile, deregulation has led to a market free-for-all that has dropped telecom prices below even those of the competitive U.S. market.

ASIA

Asia is the world's Internet development hotbed. Countries such as Indonesia can take their pick of foreign investment suitors. When Indonesia opened its telecom markets to competition in 1995, 30 international consortiums submitted bids. The only places in Asia that are not laying phone lines

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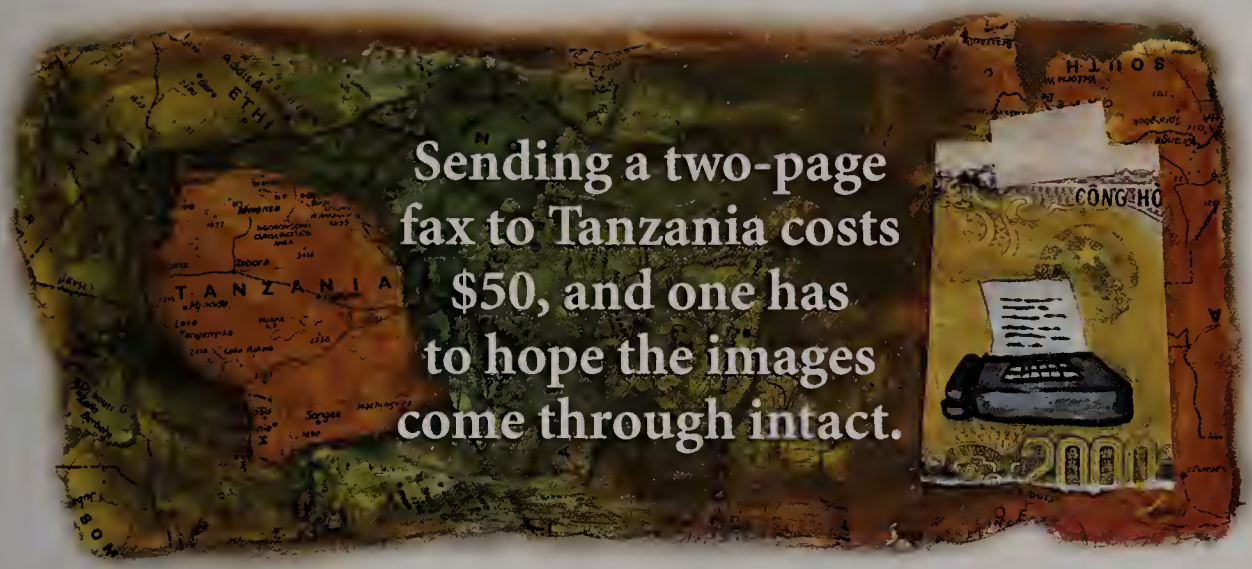

Sending a two-page fax to Tanzania costs $50, and one has to hope the images come through intact.

sectors. As the user base has grown, monthly access charges have dropped from $50 to $25, a reasonable price for the developed world, but far beyond the reach of most Zambians. Still, says Bennett, development has to start somewhere.

Making ZamNet self-sustaining was no easy feat, considering that two-thirds of the original grant money went to pay the $7,000-per-month tab for renting satellite time with Intelsat, which is the United Nations of satellite services—owned and operated by the countries it serves. While the satellite worked well, Bennett couldn't avoid Zambia's telephone company, known as a PTT. The five-kilometer distance from the ZamNet servers to the PTT's earth station and analog uplink wreaked havoc on the data.

"We were getting greater data loss in the five kilometers between the PCs and the local PTT exchange than we did between there and Capetown, where the data went global under the ocean on South Africa's highly developed fiber-optic system," Bennett says.

This year, ZamNet will remove the Zambian PTT from the picture entirely. The company has signed a deal with PanAmSat Corp., which claims to be the first private provider of global satellite services, to beam data directly from ZamNet-owned VSAT dishes to UUNet Technologies Inc.'s hub in Atlanta. Unlike the PTT link, which provided a mere 9,600Kbps of bandwidth (on a good day), this solution will let ZamNet boost its bandwidth at will.

World Bank officials are pleased to point out that the Internet is not only bringing knowledge to Africa but also keeping it there. Many of Africa's universities have fallen prey to the intellectual brain drain that seemed intractable before the arrival of the Internet. Because there are few research resources in Africa, scholars leave the continent to further their studies—and never come back. Now, projects like ZamNet and the World Bank's Mozambique pilot may help slow the exodus because they are located in the host countries' university systems, where there is a vested interest in extending the depth and reach of the network.

"Many of the doctors in rural Africa are expatriates," Bennett says, "because local doctors know that if they accept a five-year assignment in the field, they'll be so isolated that by the time they finish they'll be hopelessly behind in their knowledge. They want e-mail connectivity before they'll accept the assignments."

In a country like Zambia, where over 50 percent of the children are malnourished and 25 percent are HIV positive, Internet connectivity has literally become a matter of life and death.

"By focusing Internet connectivity among groups that can be beneficial to all parts of society, like teachers and health-care workers, you'll see the Internet spread to the rural areas and not just to the elites of society," says Boostrom.

Bennett, who has left ZamNet to consult on rural Internet connectivity elsewhere in Africa, is looking forward to hooking up Zambia's remote hospitals with laptops and e-mail accounts. He says he is proud of the success of his projects and even now, after years in the bush, is sometimes bemused by the problems maintaining his infrastructure.

"Sometimes farmers pull down the copper wire and use it to pen their goats," he says, laughing. "They don't understand what the wire is for yet."

They soon will. WM

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rapidly are those that resist the siren calls of foreign capital investment. For example, Myanmar, where it is a crime to own an unregistered modem or fax machine, and North Korea have no known connections to the Internet.

AFRICA

Though much of the continent is embroiled in economic and political turmoil, Africa has a unique opportunity to leapfrog the developed world into the digital age. The investment in its infrastructure is minimal compared with that of the United States, where telecom companies cannot afford to ditch all that copper wire. In Djibouti, for example, 100 percent of the main lines are digital, whereas less than 50 percent in the United States are. And more of Africa is going wireless. Internet service providers and telecom companies are using direct satellite connections to the Internet, and those connections could set the stage for expansion into cellular and other services—provided, of course, that Africa's inefficient, often monopolistic PTTs agree to open up their markets—and that Western investors believe it is worthwhile to invest in chronically unstable countries.
–C. Koch

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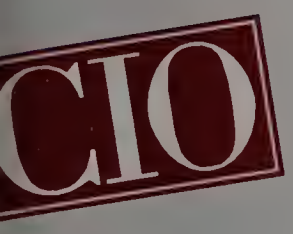

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Where Technology Gets Down to Business

Dear WebMaster Reader:

Some observers have likened the state of advancement of the World Wide Web to that of television in the early to mid-1950s. It's a comparison that leaves the inescapable impression that we are now at some primitive moment in history. But anyone old enough to really remember '50s television will recall that amid the rudimentary and unsophisticated offerings were also quite a few diamonds in the rough—pioneering shows of true distinction that pointed the way to (and in some cases even surpassed) the best of what that medium offers now.

In the spirit of recognizing comparably groundbreaking Internet and intranet development efforts, we at **WebMaster** Magazine have established the **WebMaster 50/50 Award**. We believe there's a surprising amount of distinguished pioneering work represented among the business sites that now dot the early Web. And we want to unearth it, honor it, write about it, inspire others to imitate it.

So don't hide your light under a mouse pad. We need your help and guidance. In short, we'd like you to tell us a story.

If you are the visionary who presides over an intranet that is transforming the way your organization does business, we want to hear from you. If you are exploiting the Web as the pathway to better workgroup collaboration or enterprise knowledge management, we want to hear from you. If your Web site ROI is off the charts, we want to hear from you. If your external Web is opening up new markets or expanding existing ones, we want to hear from you. If your Web-based electronic commerce initiatives are squeezing cost out of overhead-intensive customer and supplier interactions, we want to hear from you now.

Even if you're none of the above and are actually doing something so novel that no one ever imagined it before, we absolutely must hear from you immediately.

Please go right now to the **WebMaster 50/50** Web site (*www.web-master.com/50/50*) and fill out the nomination form by describing for us the hallmark distinctions of your Web site—whether it's an intranet or an Internet—and the role it plays in helping your enterprise meet its overall business objectives.

In August, we will devote our entire issue to celebrating the 100 initiatives—50 intranets and 50 Internets—that most clearly represent the benchmarks, circa 1997, of business excellence on the Web. We know you're out there. We just need you to tell us what you're doing.

And maybe eventually, decades from now, people will look back on the mid- to late 1990s as the Golden Age of the business Web.

Regards,

Lew McCreary
Editor-in-Chief & Publisher
WebMaster

WEBMASTERS TYPICALLY DON'T VIEW THEMSELVES AS GRAPHIC ARTISTS, BUT CREATING A SITE'S VISUAL IDENTITY IS PART OF THE JOB **BY MATTHEW CUTLER**

Designer Label

Say "site design" to many Web users, and what comes to mind is the parade of images crawling across their screens as they surf from site to site. But as seasoned webmasters know, design knowledge extends far beyond a familiarity with Adobe Photoshop and the clever use of complementary colors.

Of course, graphics are an integral part of design. But in its broadest sense, the term refers not just to the individual icons and images that decorate a site's pages but also to a site's big-picture look and feel, which encompasses its interface and interaction design as well as its raw visual appearance. For the webmaster—whether a solo practitioner or part of a team—that means mixing a balanced blend of theory, creativity and technology to create a site with a distinct and consistent identity.

Identity is the cornerstone of every well-designed Web site, as your site's design represents the sole mechanism for conveying your organization's image to the planet's millions of Web users. For that reason, identity should encompass every aspect of design, from a site's overall structure to its graphical look and feel to the choice of fonts and column layout.

Significantly, identity shouldn't stop at the welcome mat. In the early days of the Web, surfers routinely hit home pages with distinctive personalities that sometimes extended to the second page. But typically, three or four pages into the site, design dwindled to plain text rendered on a flat gray background. At that level, visitors might be unable to tell whether they were visiting the Royal Horticultural Society in London or Paul's Plant Palace in Pittsburgh.

More recently, site developers have gotten much more savvy about devising design theories and building common design elements into every page. But it's up to the webmaster team to make sure design remains consistent as the site expands and reflects content from a growing number of distributed authors.

One of the most important design considerations is making sure that users can quickly get their bearings anywhere on the site. Users should know instantly—and if possible, instinctively—not only whose Web site or intranet they're visiting but also where they are within the overall site structure. Naturally, the optimal time to create this effect is during the site's initial planning stages, as choices made then set the stage for—and greatly simplify—all decisions that follow. It's also the best time to ensure that the company's identity is emphasized throughout the layout, through the application of such devices as logos and standard font treatments. For most sites, though, creating and maintaining an online identity will be a work in progress.

Part 5

DESIGN

This is the fifth in a seven-part series of articles in which Webmasters' Guild President Matthew Cutler discusses the tasks and responsibilities of the webmaster function.

WEBMASTERS' GUILD

DESIGN WORK doesn't fall just to the Web team members who have "designer" or "artist" in their job titles. Everyone on the team must cooperate to ensure that a site's design, like its content, adequately reflects its business objective. For example, if a company that markets retirement packages to senior citizens greets its online customers with brash

graphics and bright colors geared to the MTV crowd, then the site's mission and its design are out of alignment.

Another important aspect of the overall design process is making navigation as intuitive and seamless as possible. The goal is to create a sense of "visual language" that provides quickly understood metaphors for user interaction. That is critical for database-driven sites, such as catalogs or knowledge bases, but it will become increasingly important to all sites as they expand.

It's also up to the webmaster team to keep reminding everyone in the enterprise that creativity means something different on the Web than it does in traditional media. Online, things tend to be looser, less conservative and more irreverent. And the Web is more flexible, allowing experimentation with such design elements as animation and interactive multimedia.

Progressive designers are increasingly simplifying Web page layouts, using white space liberally so that text is easier to read, especially on laptop computers. And although Net users are connecting to the Web at faster speeds, the old saw about letting user technology dictate your treatment of graphics remains valid. Thus, it pays to know how your customers are connecting to the Internet, and the simplest way of doing that is to analyze the domain name field of your server logs. If you see a lot of traffic from the domains of major service providers, such as America Online, CompuServe, Prodigy, Netcom or EarthLink, you're probably dealing with dial-up users, meaning you should keep things modest.

Minimizing image file sizes is a good idea in any case, as your site will appear more responsive to all users. Webmasters should know as many ways as possible to keep file sizes small, but among the best and easiest is creating images with a handful of colors rather than 256 or 16 million, even if that means compromising slightly. For instance, in doing a gradient from red to orange, using thousands or millions of intermediate colors provides a smooth transition but at the cost of saddling the user with a huge image file. Using a two-color dither instead provides a satisfactory transition—not as seamless as the more complicated palette but much faster, thanks to a file size reduced by several orders of magnitude. GIF Wizard, a very useful image reduction service, can be found at *www.raspberryhill.com/gifwizard.html.*

Every member of the Web team must cooperate to ensure that a site's design, like its content, adequately reflects its business objective.

Most webmasters are familiar with standard design tools such as Adobe Systems Inc.'s Photoshop and Macromedia Inc.'s Freehand, as well as their newer plug-ins that allow online design. A growing number also have experience with content development and management products such as Netscape Communications Corp.'s LiveWire Pro-Navigator Gold combination, Microsoft Corp.'s FrontPage and NetObjects Inc.'s Fusion. And most know that with tables and font control, it's possible to make text look much better than it did with HTML 2.0.

But webmasters must familiarize themselves with tools that not only enhance design but also simplify it, separating it from content so they can make changes quickly and painlessly. Notable among the newer technologies are cascading style sheets, which provide a Microsoft PowerPoint-like template for determining content presentation. "Server-side includes," an older option, allow webmasters to define how HTML is to be inserted into a page by the server itself, but they aren't exactly easy to use, and they require server access that some webmasters don't have.

Many advanced sites employ HTML templating systems, where content driven by back-end databases is dynamically inserted into flexible HTML templates.

The best ways to keep up with developments in design theory, practice and technology are to visit the growing number of Web-related design newsgroups, check out bookstores for good guides on the subject or join a graphic design organization, such as the American Institute of Graphic Arts.

And, of course, look to the Web itself to find pioneers. The e-zine *Suck* (*www.suck.com*), for example, uses consistent, minimalist graphics, notably a single, easy-to-read column that runs down the center of its pages. And if you're after a model for navigation, go no further than Microsoft (*www.microsoft.com*). Despite a fairly complex interface and hundreds of thousands of pages, users can generally find what they're looking for fast. And, after all is said and done, that's what design is all about. WM

Matthew Cutler is president of The Webmasters' Guild Inc. (www.webmaster.org), *the country's first professional organization for webmasters. The guild is a nonprofit organization dedicated to educating, promoting and unifying the global webmaster community. Cutler is also a founder and director of Net.Genesis Corp.* (www.netgen.com), *a provider of Web performance and usage analysis software. He can be reached at* mcutler@webmaster.org *or* mcutler@netgen.com.

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Continued from Page 64

STORIES WITH HAPPY ENDINGS

In human years, Web sites are still in their infancy, but in the timetables of some software designers, many sites are entering their third generations. A third-generation Web site, as described by Vignette Corp., which manufactures Web content production systems, is one that is large-scale and always changing; has a collaborative, automated production management framework; creates dynamic, personalized, interactive experiences; and also delivers millions of page views per day. In other words, it's very big and very expensive.

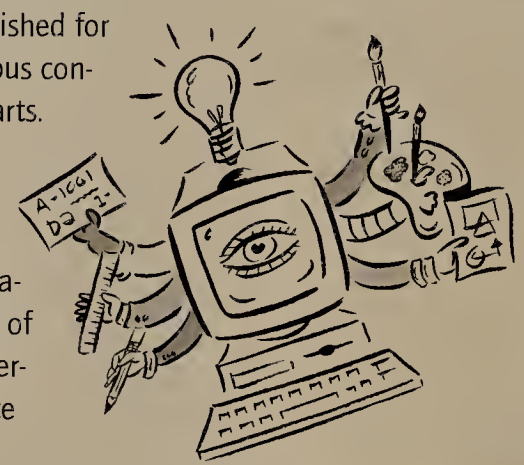
To make these sites less expensive and so easy to create that even lunkhead producers can build advanced functionality, Vignette has created two server-based products, StoryBuilder and StoryServer. StoryBuilder brings writers, editors and producers together in an integrated framework and automates workflow. StoryServer, which is available now, separates content authoring from Web page design and personalizes pages to suit site visitors' browsers. Together they will constitute what Vignette calls an "end-to-end content production system" that supports Java and Microsoft Corp.'s ActiveX.

Visit *www.vignette.com* or call 888 608-9900.

TURNING PRO

Perhaps it's the grand-sounding title stoking their egos, but corporate webmasters are demanding more and more control over their domains. As it moves into the professional marketplace, DeltaPoint Inc. hopes to do for those power developers what it has already accomplished for their less voracious consumer counterparts.

DeltaPoint's QuickSite Developer's Edition has the core database technology of its consumer offering, the QuickSite Standard Edition, but the product's 65 new features set it apart. Aimed at companies fielding sites comprising thousands of pages, the additions include support for emerging WC3 style sheets standards; a VRML creation tool; a database component architecture that lets developers make global, sectional or single-page modifications with one click; an embedded "graphics factory" based on DigitalStyle Corp. templates; and project reporting capabilities for tracking and documenting work in progress. There's also an exclusive "dueling browser" technology, which lets developers eyeball their work side by side using Netscape Navigator and Microsoft Corp.'s Internet Explorer.



DeltaPoint is on the Web at *www.deltapoint.com* and phonable at 408 648-4000.

DIRECT REPORTS

That old saw about data not being information until it's used is also true on the Web. Fortunately, a number of new decision support tools make it possible for users to retrieve data and do stuff to it—all from the comfort of a corporate intranet.

One such product—WebFocus, from Information Builders Inc.—provides access to all of an organization's data, whether it hangs out in client/server or legacy systems, data warehouses or packaged applications like SAP. Equipped with a browser, business users can run standard reports or customized queries or even create ad hoc reports. To aid analysis, WebFocus can create a single document containing the results of multiple report requests and then combine it with other text and graphics. And because we're in the Web paradigm here, information providers are able to set up hypertext links from a report item to another report, an HTML page, a CGI script or a file at another Web site.

The product's Partitioned Multitier Reporting feature lets users run reports on the Web server or on a separate application or database server, thus keeping the lid on network traffic.

For more information, see them at *www.ibi.com* or call 212 736-4433.

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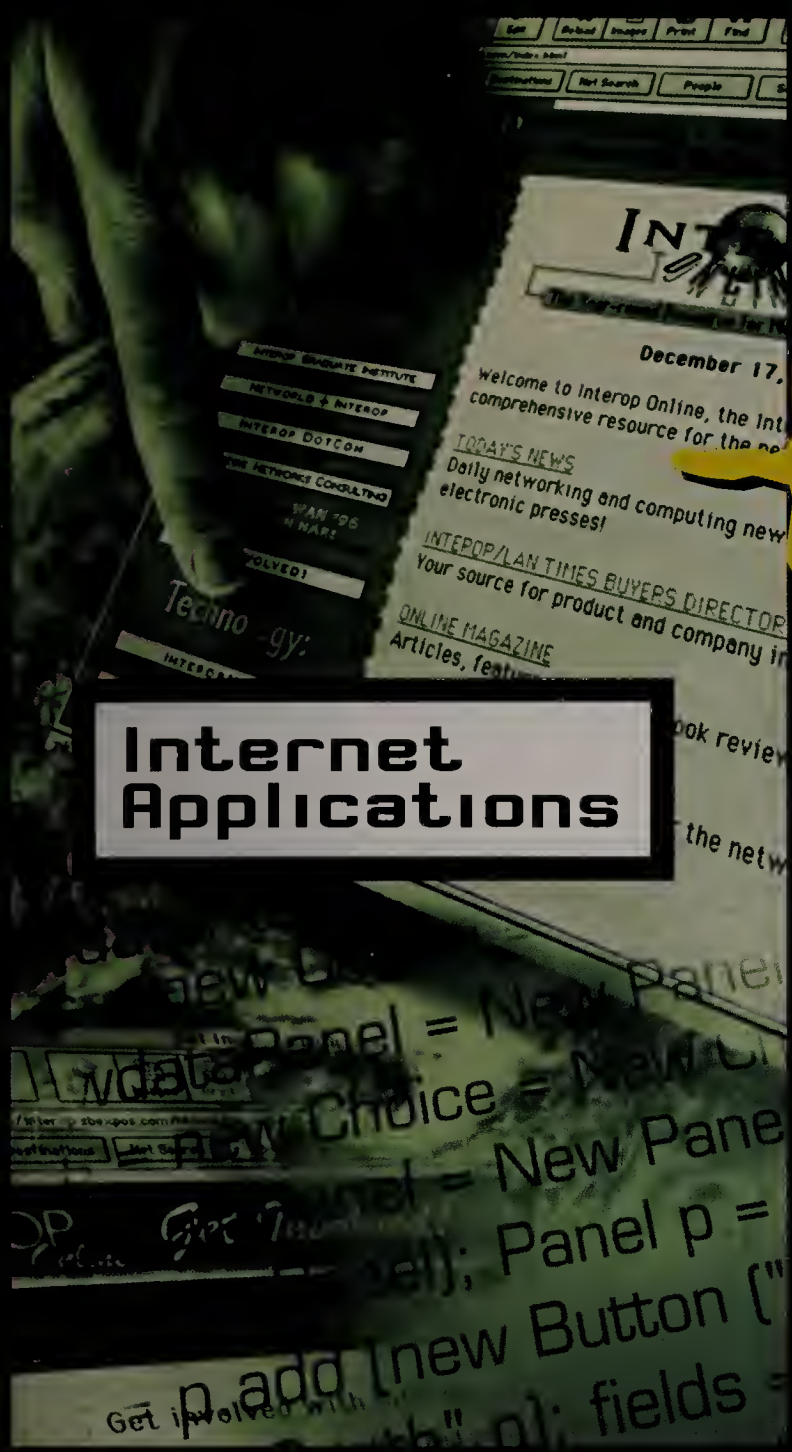

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BLAZING BROWSERS

Users have three big complaints about the World Wide Web, according to a Georgia Institute of Technology study. It's slow. It's hard to find stuff. And the stuff you do find is hard to organize.

Datalytics Inc. says its new Blaze Web Performance Pack offers an integrated approach to resolving all three problems. The desktop product, which the company describes as "a next-generation network productivity tool" aims to replace a flock of separate utilities that never work together anyway.

Blaze Web Performance Pack addresses the speed problem with a "browser accelerator" that zips up the accessing and loading of HTML pages. Users who seek will also find, thanks to the product's ability to simultaneously conduct searches over all of the Web's major search engines. Finally, an advanced bookmark utility organizes search results and the user's choice of bookmarks in a single interface, monitors key sites for changes and automatically downloads updates.

Blaze Web Performance Pack is compatible with Microsoft Corp. and Netscape Communications Corp. browsers and Microsoft's Windows 95 and Windows NT 4.0. The tools retail for $49.95. See Datalytics at *www.datalytics.com* or call 937 226-7700.

BEING THERE

Patience may be a virtue, but it's not one that many Web users possess. Customers forced to do major jet-cooling while a screen loads or who receive "server not responding" messages are likely to abandon both hope and the site.

CERFnet Services Inc.'s new SuperSite hosting services are designed to provide optimal site access no matter how many people come knocking at your door. The company's SuperSite server farms are connected directly to its dual OC3 155Mbps backbone, and each site is served by at least three OC3 circuits connecting it to other CERFnet backbone nodes or Network Access Points.

Each segment of CERFnet's national backbone is served by two nodes, so service can't be brought down by a single point of failure. The company continuously monitors the server farm and CERFnet's entire Internet backbone. If an outage occurs, an uninterruptible power supply kicks in, followed by an on-site generator. In case of a major disaster at one SuperSite, service is quickly rerouted to another, with nobody the wiser. The company measures server throughput on customer sites every five minutes, 24 hours a day, and adjusts bandwidth accordingly.

CERFnet offers programs that serve businesses of any size. You'll find them at *www.cerf.net* or at 619 455-3900.

Continued on Page 62

THE WONDER GEARS

The gears are in motion at Art Technology Group Inc.—specifically Dynamo Gears, a set of Java classes that lets developers embed some pretty potent features in HTML pages. The classes are part of the company's Dynamo Developer's Kit 2.1, a suite that also includes dynamic page generation capabilities, an object-oriented database and a SQL database gateway application programming interface.

Dynamo Gears perform a number of neat tricks, such as inserting dynamic advertisements, enabling managed discussions, creating chat rooms, letting users send messages to one another and annotating or adding content to the margins of a page.

The Dynamo Server works with virtually all HTML 2.0 files as well as Windows CGI 1.1-compliant code.

For more information, they're at *www.atg.com* or 617 859-1212.

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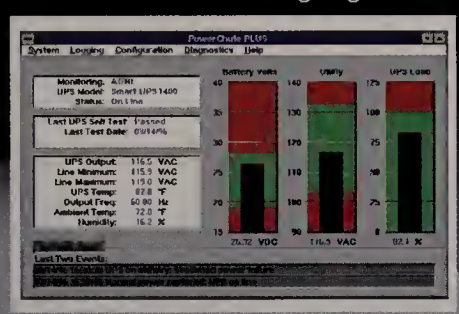

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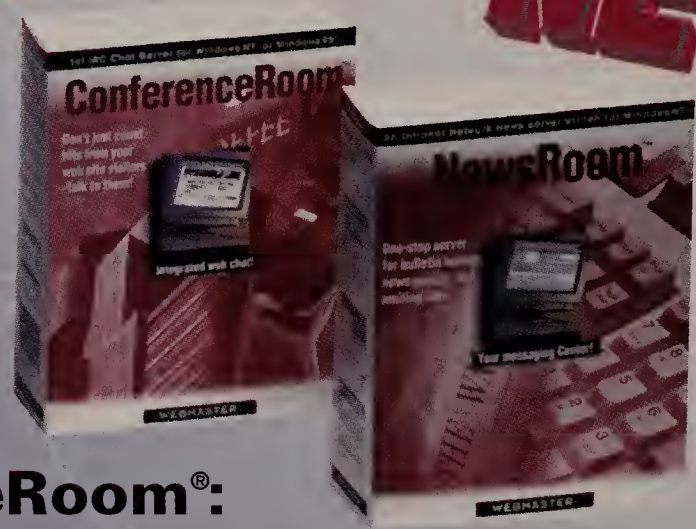

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WEBMASTER'S "WHAT *is* A WEBMASTER?" SWEEPSTAKES

ROUND 2

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So, you think you know what a webmaster does? Prove it. Use the attached ENTRY FORM to list three "webmasters" who were featured in the February, March and April issues of WebMaster Magazine — ONE from February, ONE from March AND ONE from April. After you receive the April issue of WebMaster, mail back the completed ENTRY FORM. If the ENTRY FORM has been removed, please contact Karen Fogerty at fogerty@cio.com or your regional sales representative and we'll send one right out to you.

Hint 1:

Webmasters don't necessarily have the title "webmaster."

Hint 2:

Anyone featured in the issue probably functions as a "webmaster."

Hint 3:

Cheating allowed! You can call your regional sales rep or Karen Fogerty at 508-935-4091 if you want to ensure you're providing the right answers.

Happy hunting!

*The prize is a $4,500 travel voucher from American Express Travel that can be applied to any worldwide destination of your choice.

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WebMaster's column on Intelligent Agents really got me thinking about how to improve our clients' Web sites. It's exactly the type of information I'm looking for.

Kurt Dressel
Vice President of Marketing
Gannett Company

"WHAT *is* A WEBMASTER?"

SWEEPSTAKES ENTRY FORM

FOR FEBRUARY • MARCH • APRIL

Read through the articles in WebMaster Magazine and list three "webmasters" who were featured in the February, March and April issues of WebMaster Magazine — ONE from February, ONE from March AND ONE from April. After you receive the April issue of WebMaster, mail back the completed ENTRY FORM. Keep in mind that webmasters don't necessarily have the title "webmaster." If you need a little help, feel free to contact your WebMaster regional sales representative — they're very knowledgable about reaching your target audience!

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WEBMASTER'S "WHAT *is* A WEBMASTER?" SWEEPSTAKES

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1. On an official entry form, hand print your name, title, company name, company address, and business phone number and list three "webmasters," their titles and organization that appear in the February, March and April issues of WebMaster Magazine. You may obtain a free copy of the magazine and an official entry form with rules either by writing to: CIO Communications, Inc., 492 Old Connecticut Path, P.O. Box 9208, Framingham, MA 01701-9208 or by calling (508) 935-4091 or emailing fogerty@cio.com. Only one copy of each issue per individual or household is allowed. Sweepstakes begins 1/1/97.
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3. There will be a drawing on May 7, 1997 for the February/March/April Sweepstakes. One Grand Prize consists of a $4,500 Travel Voucher from Thomas Cook Travel. Travel must be completed by August 31, 1998.
4. Winners of the February/March/April Sweepstakes drawing will be selected, from among correctly answered entries, in a random drawing. Odds of winning are dependent upon the number of correct entries received. The winner will be notified by mail immediately following the drawing. Prizes are non-transferable and no substitutions or cash equivalents are allowed.
5. All entrants must release CIO Communications, Inc., and its parent company, affiliates, subsidiaries, advertising agencies, promotion agencies and all others associated with the development and execution of this sweepstakes from any and all liability for damages, losses or injury resulting from acceptance of any prize. Sponsor reserves the right to substitute a prize of equal or greater value. All federal, state and local taxes, gratuities, insurance, travel documentation, incidentals and expenses not specifically stated in the prize description, are the sole responsibility of the individual winners. Winners will be required to verify address and execute an affidavit of eligibility and liability release within 14 days of notification attempt. Failure to execute any requested documents within such 14 day period will result in forfeiture of prize and an alternate winner will be selected. Travel companions of trip winners must be over 18 years of age and will be required to provide proof of age and execute a liability release. No responsibility is assumed for lost, misdirected, illegible, mutilated, postage due or late entries by mail. Entry (and acceptance of prize) constitutes permission to use winner's name and likeness for publicity and advertising purposes without further compensation. Trips subject to availability and confirmation of reservations must be made by August 1, 1998. Certain travel restrictions and seasonal limitations may apply.
6. Sweepstakes open only to advertising agency and corporate personnel who are responsible for the purchase of magazine advertising space who are residents in and of the continental U.S. and 18 years of age or older as of 2/1/97. Employees and their families of CIO Communications, Inc., its parent company, affiliates, subsidiaries, advertising and promotion agencies are ineligible. This offer is void where prohibited or restricted by law, and subject to all federal, state and local laws and regulations.
7. For the name of the winners, send a stamped, self-addressed envelope to: CIO Communications, Inc., 492 Old Connecticut Path, What Is A Webmaster Sweepstakes, P.O. Box 9208, Framingham, MA 01701-9208 by July 1, 1997. Washington residents need not affix return postage.

WebMaster 1997 Editorial Calendar

Issue Date	Advertising Closing Date	Features	Bonus Distribution
Jan	December 9	• Application Development on the Web • Intranet Profile • Distributed Authoring	ComNet, Feb 4 - 6 Internet Expo, Feb 18 - 20
Feb	January 13	• Department of (Electronic) Commerce: The Utilities Industry • Approaches to Web Site Management • Designing Your Intraface	Spring Internet World, March 12 - 14
Mar	February 7	• Field Report: Authentication • The Region Wide Web • Customer Self-Service	CIO Perspectives, March 23 - 26 ICE, April 9 - 11
Apr	March 12	• Function Keys: Engineering • Web ROI • Security Tradeoffs	Networld/Interop, May 6 - 8
May	April 11	• Integrating Your Internet and intranet • The Mobile Mosaic • Making Outsourcing Succeed	WebMaster Perspectives, May 18 - 21 PC Expo, June 17 - 19
June	May 12	• Field Report: Data Mining • Collaboration on the Web • Intranet Profile	
July (Harvey Study Issue)	June 11	• Special Issue: The Web Infrastructure • Integrating Web and Legacy Systems • Planning the Future Web • The Human Infrastructure	Internet Expo, August 13 - 14
Aug	July 15	• Special Issue: The WebMaster 50/50: Defining Web-Enabled Business Excellence • 50 World-Class intranet Sites • 50 World-Class Internet Sites	ICE, September 9 - 11
Sept	August 11	• Schooling on the Internet • The Database Derby • Managing Employee Web Use	Networld/Interop, October 8 - 10 CIO Perspectives, October 13 - 15
Oct	September 11	• The New Librarians • EDI Update • Leveraging Communities for Business	
Nov	October 10	• Health Care Goes Online • Intranet Profile • Function Keys: Sales Support	WebMaster Perspectives, December 7 - 10
Dec (Harvey Study Issue)	November 11	• Five Uneasy Pieces: The Web Debunked • Department of (Electronic) Commerce: Financial Services • Field Report: Telephony	

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